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HS#
638501

135-TRC-06-004

**SAFETY COMPLIANCE TESTING FOR FMVSS 135
Passenger Car Brake Systems**

Fuji Heavy Industries Ltd, (Assemble by SIA Inc.)
2006 Subaru B9 Tribeca, 5-door MPV
NHTSA No. C65500

TRANSPORTATION RESEARCH CENTER INC.

10820 State Route 347
East Liberty, Ohio 43319



Final Report Completed: August 11, 2006

FINAL REPORT

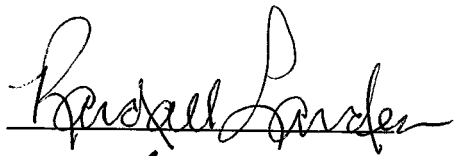
Prepared Under Contract No.: DTNH22-01-C-21025

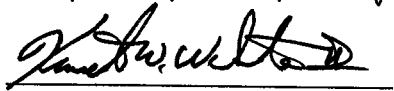
**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement**

Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6115 (NVS-220)
Washington, DC 20590

Prepared for the Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-01-C-21025.

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Prepared By 

Approved By 

Approval Date: 8/10/06

Final Report Acceptance By OVSC:


Contract Technical Manager, Office of
Vehicle Safety Compliance

8/24/06
Acceptance Date

1. REPORT NUMBER: 135-TRC-06-004		2. GOVERNMENT ACCESSION NO.:		3. RECIPIENTS CATALOG NO.:	
4. TITLE AND SUBTITLE: Final report of FMVSS 135 Compliance Testing of a 2006 Subaru B9 Tribeca, 5-Door MPV, NHTSA No. C65500			5. REPORT DATE: August 11, 2006		
			6. PERFORMING ORGANIZATION CODE: TRC 20000113/6351		
7. AUTHOR(S): Project Manager: WALTER DUDEK Project Engineer: RANDALL A. LANDES			8. PERFORMING ORGANIZATION REPORT NO.: TRC-DOT-135-066		
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Transportation Research Center Inc. 10820 State Route 347 East Liberty, Ohio 43319			10. WORK UNIT NUMBER:		
			11. CONTRACT OR GRANT NO.: DTNH22-01-C-21025		
12. SPONSORING AGENCY NAME AND ADDRESS: U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, SW, Room 6115 Washington, DC 20590			13. TYPE OF REPORT AND PERIOD COVERED: Final test report Tested: 07/10/06 to 07/21/06		
			14. SPONSORING AGENCY CODE: NVS-220		
15. SUPPLEMENTARY NOTES:					
16. ABSTRACT: Compliance tests were conducted on the subject 2006 Subaru B9 Tribeca, 5-Door MPV, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-135-01 for the determination of FMVSS 135 compliance. Test failures identified were as follows: None.					
17. KEY WORDS: Compliance Testing Safety Engineering FMVSS 135			18. DISTRIBUTION STATEMENT: Copies of this report are available from: NHTSA Technical Reference Division Mail Code: NAD-40 400 Seventh Street, SW, Rm. 5108 Washington, DC 20590 Telephone No. (202) 366-4949		
19. SECURITY CLASSIF. (OF THIS REPORT): Unclassified	20. SECURITY CLASSIF. (OF THIS PAGE): Unclassified		21. NO. OF PAGES: 76		22. PRICE:

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1.0 INTRODUCTION

Tests were conducted on a 2006 Subaru B9 Tribeca, 5-door MPV, manufactured by Fuji Heavy Industries Ltd., (Assemble by SIA Inc.), to determine compliance with FMVSS 135 "Passenger Car Brake Systems." All tests were conducted in accordance with the U.S. D.O.T., NHTSA Laboratory Procedure TP 135-01 and/or the corresponding TRC Inc. Test Procedure that was submitted to NHTSA for their approval. The Test Procedure was clearly described in the submitted document and has not been repeated in this report.

All stops were performed manually.

All tests were conducted by TRC Inc. personnel using the following TRC facilities:

7.5-Mile Test Track

Vehicle Maximum Speed

Burnish

Heating Snubs and Hot Performance Stops

Brake Cooling and Recovery Stops

Skid Pad

Cold Effectiveness Stops

High Speed Effectiveness Stops

Stops with Engine Off

Failed Antilocks

Failed Variable Proportioning Valve (if applicable)

Failed Hydraulic Circuits

Brake Power Assist Unit Failures

RBS Failure (if applicable)

EMF (Battery) Failure (if applicable)

Brake Slope

Parking Brake

Average PFC during the test period was 0.96 (Skid Pad) and 0.95 (Test Track) utilizing the ASTM E1337 w/E1336 tire method.

The test vehicle was ABS equipped. Therefore, the Wheel Lock Sequence and Adhesion Utilization Tests were not performed.

This vehicle met the requirements of FMVSS 135.

DATA SHEET 1 - VEHICLE INFORMATION

VEHICLE SPECS

Year: 2006	NHTSA No: C65500
Make: SUBARU	GVWR (Kg): 2585.52
Model: B9 TRIBECA	GAWR Front(Kg): 1368.0576
Body Style: 5-DR. MPV	GAWR Rear(Kg): 1515.024
Mfr. Date: 05/05	Wheelbase (mm): 2748.28
VIN: 4S4WX83C564403897	Odometer: Start:235 MI. End:703 MI.

BUSES ONLY

Chassis Mfg.: N/A
 Serial No.: N/A
 No. of Seats: N/A
 Manufacture Date: N/A

Engine Type: GASOLINE,6 CYL.,DOHC,SFI,PISTON.	Tire Size: P255/55R18
Displacement: 3.0 LITER	Tire Type: EAGLE LS,104H,RADIAL,TUBELESS
Engine Hspwr: N/A	Tire Mfr.: GOODYEAR
Idle Speed(rpm): 690	GVWR Front Press.(kpa): 227.53
Transmission Type: AUTO.5-SPD.W/SPORT SHIFT	GVWR Rear Press.(kpa): 220.63
No. of Axles: 2	

BRAKE APPLY SYSTEM

Brake Series: Front:DISC Rear:DISC	Power Assist Unit: YES
Brake Actuation	Pwr Unit w/Accumulator: NO
(Hydr. Circuit Split): DIAGONAL	Pwr Asst./Pwr Unit w/Backup: YES
Power Unit: VACUUM	Variable Prop. System: YES
Anti-Skid unit Mfr: ADVICS	Anti-Skid Device: YES
Parking Mechanism: YES	
Type of Parking Unit: AUTOMATIC TRANSMISSION WITH PARK DETENT.	
Mstr Cylinder Dia(mm): 23.83	Pedal Ratio: 3.7 : 1

FRONT SYSTEM BRAKE COMPONENT MATERIALS AND CONSTRUCTION:

BRAKE TYPE: DISC	Material: CAST
Drum Construction: N/A	LF Drum Shoe Cage Dia.(mm): 0.00
Disc Construction: INTEGRAL CAST,VENTED	RF Drum Shoe Cage Dia.(mm): 0.00
Front Brake Dia.(mm): 315.49	LF Drum Dia. RESET(mm): 0.00
Fr Disc Thickness(mm): 29.97	RF Drum Dia. RESET(mm): 0.00

FRONT BRAKE COMPONENT DIMENSIONS AND CODES:

Inboard (Primary)	Outboard (Secondary)
Width(mm): 53.01	Width(mm): 53.04
Length(mm): 129.59	Length(mm): 129.64
Thickness(mm): 10.67	Thickness(mm): 10.64
Lining Code/Color: AK FA300 FF	Lining Code/Color: AK FA300 FF
Hyd. Piston Dia.(mm): 42.82	

DATA SHEET 1 - (CONTINUED)

REAR SYSTEM

BRAKE COMPONENT MATERIALS AND CONSTRUCTION:

BRAKE TYPE: DISC

Material: CAST IRON

Drum Construction: N/A

LR Drum Shoe Cage Dia.(mm): 0.00

Disc Construction: INTGRL CST, VENT

RR Drum Shoe Cage Dia.(mm): 0.00

Lining Construction: BONDED

LR Drum Dia. RESET(mm): 0.00

Rear Brake Dia.(mm): 319.63

RR Drum Dia. RESET(mm): 0.00

Rr Disc Thickness(mm): 17.86

REAR BRAKE COMPONENT DIMENSIONS AND CODES:

Inboard (Primary)

Width(mm): 34.34

Length(mm): 95.50

Thickness(mm): 10.87

Lining Code/Color: NBK FN350 FF

Hyd Piston Dia (mm): 0.00

Outboard (Secondary)

Width (mm): 34.42

Length (mm): 95.53

Thickness (mm): 10.87

Lining Code/Color: NBK FN350 FF

OTHER COMPONENT INFORMATION:

Friction-type Park Brake: N/A

Non-Service Brake Type

Parking Brake: FOOT-OPERATED

NOTE: If at any time after the test series has begun, any brake system part requires replacement or the brake system requires adjustments other than permitted in burnish and reburnish procedures, discontinue testing and notify the COTR immediately.

Technician: Karen Easterday

KAREN EASTERDAY

Date: 08-11-06

Quality Assurance: Ken Webster

KEN WEBSTER

VEHICLE: 2006 Subaru B9 Tribeca

NHTSA NO.: C65500

DATE: 07/24/06

3.0 SUMMARY OF TESTING

		Specification and Limit				TEST RESULTS (In compliance if one stop meets requirement)			
TEST	Loading Condition	Speed (km/h)	Min. Pedal Force (N)	Max. Pedal Force (N)	Stopping Distance Requirement (m)	Shortest Stop Min. Pedal Force (N)***	Shortest Stop Max. Pedal Force Newtons (Average – N)	Shortest Stop Stopping Distance (m) (Corrected)	PASS Fail
Equipment Requirements					Specified Equipment	Vehicle contains specified equipment			Pass
Vehicle Maximum Speed	LLVW	NA				189.0 km/h avg.			NA
Burnish	GVWR	80				200, 80 - 0 km/h stops @ 3.0 mpsps			NA
Wheel Lockup Sequence w/o ABS	GVWR				Lockup of front wheels prior to rear	ABS Equipped			NA
Wheel Lockup Sequence w/o ABS	LLVW					ABS Equipped			NA
Adhesion Utilization w/o ABS	LLVW				Rear axle adhesion utilization curve below specified value	ABS Equipped			NA
Adhesion Utilization w/o ABS	GVWR					ABS Equipped			NA
Cold Effectiveness	GVWR	100	65	500	70	5	470.1	50.0	Pass
High Speed Effectiveness	GVWR	151.2	65	500	spd. depend. – 168.3	5	497.3	107.3	Pass
Stops with Engine Off	GVWR	100	65	500	70	5	465.7	51.6	Pass
Cold Effectiveness	LLVW	100	65	500	70	5	483.1	46.1	Pass
High Speed Effectiveness	LLVW	151.2	65	500	spd. depend. – 168.3	5	492.1	100.7	Pass
Failed Antilock	LLVW	100	65	500	85	5	253.0	57.3	Pass
Failed Proportioning Valve	LLVW	100	65	500	110	5	NA	NA	NA
Failed Hydraulic Circuit #1	LLVW	100	65	500	168	5	475.8	93.3	Pass
Failed Hydraulic Circuit #2	LLVW	100	65	500	168	5	482.6	94.8	Pass
Failed Hydraulic Circuit #1	GVWR	100	65	500	168	5	482.0	98.2	Pass
Failed Hydraulic Circuit #2	GVWR	100	65	500	168	5	484.5	99.6	Pass
Failed Antilock	GVWR	100	65	500	85	5	286.3	60.3	Pass
Failed Proportioning Valve	GVWR	100	65	500	110	5	NA	NA	NA
Regenerative Brake System (RBS) Failure	GVWR	100	65	500	168	5	NA	NA	NA
Electromotive Force (EMF) – Battery Failure	GVWR	100	65	500	70	5	NA	NA	NA
Power Brake Unit Failure	GVWR	100	65	500	168	5	495.6	156.3	Pass
Parking Brake - Uphill	GVWR	-	-	500	Hold for 5 min.?	NA	499.8 (Prk Br)	Yes-Holds	Pass
Parking Brake - Downhill	GVWR	-	-	500	Hold for 5 min.?	NA	474.9 (Prk Br)	Yes-Holds	Pass
Heating Snubs	GVWR	120-	NA	NA	15 Snubs- 3.0 mpsps	5	30 Vis. Avg.	NA	NA
Hot Performance Stop #1	GVWR	100	65	386 avg	75.7	5	425.2 (301.2)	51.3	Pass
Hot Performance Stop #2	GVWR	100	65	500	89	5	424.1 (303.1)	54.0	Pass
Brake Cooling	GVWR	50	NA	NA	4 Stops - 3.0 mpsps	5	32 Vis. Avg.	NA	NA
Recovery Performance Stop #1	GVWR	100	65	386 avg	One of the two stops between 28.8 and 66.3 meters.	5	412.9 (290.7)	48.1	Pass
Recovery Performance Stop #2	GVWR	100	65	386 avg		5	452.6 (310.3)	48.1	
Final Inspection-Brake Integrity	Check components for detachment, fracture or lubricants.					No detachments or fractures-normal appear. & color.			Pass
Final Inspection-Reservoirs/Warning Indicators	Master cylinder or brake power reservoir shall meet the volume and label requirements of S5.4.2 and S5.4.3.					Brake system has sufficient capacity and indicators are in compliance.			Pass

** Note: The Shortest Stop Minimum Pedal Force represents the minimum force value required to engage the data acquisition's recording mode.

DATA SHEET 3 - VEHICLE WEIGHT

VEHICLE: SUBARU 2006 SUBARU 5-DR. MPV

NHTSA No. C65500 Date: 07/13/06

Tire Pressure(cold): Front (kpa) 228 Rear (kpa) 221

Odometer: Start 235 MI. End 703 MI.

Scale(s) Used: TRC Scales

NOTE: GVWR, LLVW and axle weights to be measured within +0% and -1%.

GVWR/GAWR INFORMATION
(From Veh. Certification Label)

UNLOADED VEHICLE WEIGHT(UVW)

GVWR(Kg): 2586
GAWR Front(Kg): 1368
GAWR Rear(Kg): 1515

L Front(Kg): 529 L Rear(Kg): 430
R Front(Kg): 528 R Rear(Kg): 406
T Front(Kg): 1056 T Rear(Kg): 836
Total UVW(Kg): 1892

TARGET LIGHT LOADED WEIGHT(LLVW):

ACTUAL LIGHT LOADED WEIGHT(LLVW):

NOTE 1: LLVW = UVW+181.4Kg

NOTE 2: Weight distributed in front passenger seat area.

NOTE 3: Neither axle load at LLVW less than at UVW; ballast as required.

L Front(Kg): 578 L Rear(Kg): 471
R Front(Kg): 578 R Rear(Kg): 447
T Front(Kg): 1156 T Rear(Kg): 919
Total LLVW(Kg): 2075

L Front(Kg): 582 L Rear(Kg): 472
R Front(Kg): 573 R Rear(Kg): 446
T Front(Kg): 566 T Rear(Kg): 918
Total Actual Test LLVW(Kg): 2073

Load: Driver/Observer 73(Kg) + Instru.41(Kg) + Ballast 68(Kg) = 181.44(Kg)

FULLY LOADED TEST WEIGHT (ACTUAL GVWR)

NOTE 1: Vehicle loaded so axle loads proportional to GAWR shown previously.

NOTE 2: But no axle weight to be less than at LLVW.

NOTE 3: If weight on any axle at LLVW exceeds the axle's proportional share of the GVWR, the load required to reach GVWR is placed so that the weight on that axle remains the same as at LLVW.

L Front(Kg): 606 L Rear(Kg): 684
R Front(Kg): 621 R Rear(Kg): 674
T Front(Kg): 1227 T Rear(Kg): 1358
Total Fully Loaded GVWR(Kg): 2585

Load: Driver/Observer 73(Kg) + Instru. 41(Kg) + Ballast 579(Kg)= 693(kg)

Technician:

KAREN EASTERDAY

Date:

08-11-06

Quality Assurance:

KEN WEBSTER

DATA SHEET 4 - EQUIPMENT REQUIREMENTS (S5)

SERVICE BRAKE SYSTEM (S5.1)

Vehicle equipped with a service brake system acting on all wheels? YES

Wear Adjustment (S5.1.1):

Service Brakes are compensated for wear by means of a system of automatic adjustment? YES

Describe: DISC-AUTOMATIC CLEARANCE TAKE-UP.

Wear Status (S5.1.2):

Wear status of service brakes is indicated by:

(A) Acoustic or optical device? YES

Describe: METAL TAB EMITS HIGH FREQUENCY SQUEAL WHEN WORN.

(B) Visual check outside or under vehicle? YES

Describe: FRONT & REAR: REMOVE WHEEL, LOOK THROUGH CALIPER.

PARKING BRAKE SYSTEM (S5.2)

Vehicle equipped with a parking brake system of a friction type with solely mechanical means to retain engagement: YES

CONTROLS (S5.3)

(A) Service brakes activated by means of a foot control? YES

(B) Parking brake control is independent of the service brake control? YES

(C) Parking brake control is hand or foot operated? YES

(D) ABS, if equipped, cannot be manually disabled? YES

DATA INDICATES COMPLIANCE: YES

COMMENTS:

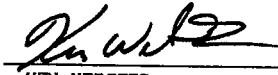
Tester/Technician:


KAREN EASTERDAY

Date:

08-11-06

Quality Assurance:


KEN WEBSTER

DATA SHEET 5 - VEHICLE MAX SPEED

VEHICLE: SUBARU 2006 SUBARU 5-DR. MPV

NHTSA No. C65500 Date: 07/13/06

Ambient Temperature: 25.56°C

Wind Velocity: 4.83(KM/H)

Road PFC: .97

Wind Direction: 45°

Odometer: Start 248(Km) End 263(Km)

TEST WEIGHT: Total (Kg): 2073

Front (Kg): 566

Rear (Kg): 918

ESTABLISH VEHICLE MAXIMUM SPEED

VEHICLE LOAD: LLVW

IBT: N/A

GEAR: Drive

DECEL RATE: N/A

PEDAL FORCE: N/A

WHEEL LOCKUP: N/A

TEST SPEED: Maximum attainable from

INTERVAL: N/A

a standing start in 3.2 km.

1. Ballast Vehicle to LLVW
2. Accelerate at a maximum rate from a standing start for a distance of 3.2 km on a level surface.
3. Repeat in opposite direction.
4. Record speed attained in each direction and use the average of the two runs.

	DIRECTION	MAX SPEED (km/h)		Time 0 - 100 KPH (seconds)
		Visual	Recorded	
Run No. 1	South	191 kph	191.6	10.05
Run No. 2	North	186 kph	186.4	10.39

AVERAGE = 189.0

COMMENTS: INV DATA, Section 0001, 07/13/06, 13:24:54

Tester/Technician:

Karen Easterday
KAREN EASTERDAY

Date: 08-11-06

Quality Assurance:

Ken Webster
KEN WEBSTER

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/13/06

DATA SHEET 10 - BURNISH AT GVWR

Testing Conditions: INV DATA, Section 0002, 07/13/06, 16:20:42

Weather Conditions: 72°F Wind: 1 mph 55°

Start Odo.: 268 End Odo.: 527

Schedule:

Initial Brake Temperature Less Than 100°C
Initial Speed 80 km/h to zero
200 stops with transmission in gear

Performance Requirements:

Interval between runs: Time necessary to reduce IBT to 100 C° OR
2 km distance, whichever occurs first.
Constant decel rate: 3.0 m/s²
Pedal force adjusted to maintain constant decel.
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	MAX.	AVG.	
#	SPD	FRONT	FRONT	REAR	REAR	PEDAL	PEDAL	AVG.
	(kph)	IBT	IBT	IBT	IBT	FORCE	FORCE	DECEL
		(°C)	(°C)	(°C)	(°C)	(N)	(N)	(m/sec ²)
1	80.87	114	122	127	122	52.75	42.63	2.59
10	81.13	122	143	136	135	43.18	31.56	2.82
20	80.51	115	146	132	133	44.61	29.53	2.85
30	80.62	116	142	131	131	45.71	30.67	2.86
40	81.28	120	132	123	126	41.24	31.46	2.97
50	80.82	127	133	130	133	43.77	29.97	2.77
60	79.50	124	132	118	113	41.59	25.76	2.67
70	79.12	125	131	123	124	39.35	26.50	2.95
80	79.77	124	129	128	127	38.31	27.05	2.89
90	79.69	122	127	128	126	40.10	26.95	2.95
100	80.11	124	128	129	126	42.93	26.70	2.96
110	79.79	127	130	108	109	43.57	30.27	2.90
120	79.10	125	127	118	116	38.71	27.74	2.97
130	79.82	125	123	124	119	41.89	27.49	2.99
140	79.08	121	121	127	122	37.82	28.63	2.84
150	79.42	121	121	128	120	43.32	27.49	2.93
160	80.17	119	119	127	116	41.09	26.70	2.91
170	80.29	121	122	128	117	42.38	26.65	2.83
180	80.02	122	123	129	116	36.62	27.69	2.79
190	78.40	118	121	124	112	39.26	25.01	2.94
200	78.73	117	121	126	114	37.42	24.42	2.81

BRAKE ADJUSTMENT

Schedule:

Adjust service brakes; record procedure and amount adjusted.

Left Front: DISC DISC BRAKE NO ADJUSTMENT REQUIRED
Right Front: DISC DISC BRAKE NO ADJUSTMENT REQUIRED
Left Rear: DISC DISC BRAKE NO ADJUSTMENT REQUIRED.
Right Rear: DISC DISC BRAKE NO ADJUSTMENT REQUIRED.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU

NHTSA NUMBER: C65500

Transportation Research Center, Inc.

Make: SUBARU

10820 State Route 347

Model: B9 TRIBECA

East Liberty, Ohio 43319

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 228 (Kpa)

Rear Cold Tire Pressure: 221 (Kpa)

Date Tested: 07/14/06

DATA SHEET 11 - COLD EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 0015, 07/14/06, 08:38:55

Weather Conditions: 77°F Wind: 5 mph 162°

Start Odo.: 533

End Odo.: 539

Schedule:

Initial Brake Temperature 65 - 100 C

Initial Speed 100 km/h to zero

6 stops with transmission in neutral

Performance Requirements:

One Stop with:

Stopping Distance less than 70m

Pedal force between 65N and 500N

No Lock-Up allowed longer than 0.1 sec above 15 km/h

Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT		RIGHT		ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
		FRONT IBT (°C)	FRONT IBT (°C)	REAR IBT (°C)	REAR IBT (°C)						
1	100.49	81	79	72	69	54.8	54.3	367.99	237.59	11.07	7.03
2	98.72	94	92	76	77	51.8	53.2	445.90	342.53	13.60	6.86
3	99.43	98	98	73	74	49.4	50.0	470.12	386.02	15.27	7.38
4	99.47	94	96	67	68	51.0	51.5	495.03	374.03	13.19	7.08
5	100.26	96	98	66	69	51.1	50.8	491.51	367.00	12.88	6.83
6	99.93	93	97	63	66	51.0	51.0	465.51	364.23	13.58	6.84

STOP #	DRIVER VEHICLE STOP COMMENTS			
	(Wheel Lock up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

Corrected Distances are used to determine shortest stopping distance.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 08/08/06

Approving Laboratory Official: KEN WEBSTER

Date: 08/17/06

Vehicle: 2006 SUBARU

NHTSA NUMBER: C65500

Transportation Research Center, Inc.

Make: SUBARU

10820 State Route 347

Model: B9 TRIBECA

East Liberty, Ohio 43319

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 228 (Kpa)

Rear Cold Tire Pressure: 221 (Kpa)

Date Tested: 07/14/06

DATA SHEET 12 - HIGH SPEED EFFECTIVENESS AT GVWR

Testing Conditions: INV DATA, Section 0020, 07/14/06, 09:49:14

Weather Conditions: 82°F Wind: 11 mph 191°

Start Odo: 541

End Odo: 557

Schedule:

Initial Brake Temperature: 65-100°C

Initial Speed: 80% max km/h, not greater than 160km/h

6 stops with transmission in gear

Performance Requirements:

One Stop with:

Stopping Distance less than: 168.3 meter

Pedal force between 65N and 500N

No Lock-Up allowed longer than 0.1 sec above 15 km/h

Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
1	151.24	81	83	72	67	112.3	112.2	413.51	331.49	13.59	7.66
2	150.16	90	91	60	64	110.0	111.5	497.71	384.39	13.04	7.54
3	149.92	83	93	56	66	107.8	109.6	480.82	384.14	12.57	7.64
4	149.99	81	91	51	61	107.3	109.0	471.36	354.77	13.58	7.70
5	151.41	78	88	49	58	107.6	107.3	497.31	393.10	13.37	7.94
6	150.92	82	92	51	61	108.9	109.3	485.97	379.43	13.19	7.86

STOP # DRIVER VEHICLE STOP COMMENTS
(Wheel Lock up - Direction of Stop - Stay in Lane)

STOP #	DRIVER VEHICLE STOP COMMENTS
1	- NOX SOUTH YES
2	- NOX SOUTH YES
3	- NOX SOUTH YES
4	- NOX SOUTH YES
5	- NOX SOUTH YES
6	- NOX SOUTH YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 08/08/06

Approving Laboratory Official: KEN WEBSTER

Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/14/06

DATA SHEET 13 - STOPS WITH ENGINE OFF AT GVWR

Testing Conditions: INV DATA, Section 0025, 07/14/06, 11:49:12

Weather Conditions: 84°F Wind: 10 mph 175° Start Odo.: 561 End Odo.: 574

Schedule:

Initial Brake Temperature: 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:

One Stop with:
Stopping Distance less than 70m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
1	100.26	91	97	67	68	56.8	56.5	438.12	306.73	9.83	6.36
2	99.43	93	98	69	67	58.7	59.4	482.65	365.27	9.66	6.37
3	99.74	92	99	68	66	51.3	51.6	465.71	357.59	11.13	7.21
4	99.97	78	84	74	71	54.6	54.6	481.01	343.62	11.47	6.84
5	99.61	74	82	63	57	58.7	59.2	484.38	367.94	9.92	6.64
6	98.94	72	81	59	52	56.1	57.3	492.51	378.49	10.35	6.73

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/14/06

DATA SHEET 14 - COLD EFFECTIVENESS AT LLVW

Testing Conditions: INV DATA, Section 0030, 07/14/06, 14:26:27

Weather Conditions: 86°F Wind: 12 mph 209° Start Odo.: 578 End Odo.: 584

Schedule:

Initial Brake Temperature: 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:

One Stop with:
Stopping Distance less than 70m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.15	87	94	77	72	48.6	49.4	444.17	296.18	13.17	8.04
2	99.52	81	90	63	57	47.9	48.3	464.97	334.96	12.39	7.33
3	100.05	66	78	53	48	47.3	47.2	375.22	257.30	13.08	7.58
4	100.33	87	94	64	58	46.4	46.1	483.14	338.52	14.33	7.71
5	99.87	79	88	56	51	46.2	46.4	505.63	298.41	12.05	6.96
6	98.87	79	89	58	53	46.7	47.8	433.67	315.74	12.55	7.28

STOP # DRIVER VEHICLE STOP COMMENTS
(Wheel Lock-Up - Direction of Stop - Stay in Lane)

1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/14/06

DATA SHEET 15 - HIGH SPEED EFFECTIVENESS AT LLVW

Testing Conditions: INV DATA, Section 0035, 07/14/06, 15:24:22

Weather Conditions: 80°F Wind: 5 mph 137° Start Odo.: 584 End Odo.: 600

Schedule:

Initial Brake Temperature: 65-100°C
Initial Speed: 80% max km/h
6 stops with transmission in gear

Performance Requirements:

One Stop with:
Stopping Distance less than 168.3m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
1	150.79	89	96	61	57	102.5	103.1	472.74	333.32	13.22	8.18
2	149.83	91	93	56	51	99.5	101.4	490.03	360.41	13.56	7.65
3	150.73	77	79	81	76	113.5	114.2	450.43	255.03	13.05	7.76
4	151.23	88	92	56	63	106.2	106.2	488.53	338.60	17.54	8.09
5	150.67	77	88	41	52	100.0	100.7	492.14	386.15	13.26	8.38
6	149.66	65	83	36	46	101.6	103.7	459.58	343.65	18.16	8.16

STOP # DRIVER VEHICLE STOP COMMENTS
(Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP #	DRIVER VEHICLE STOP COMMENTS
1	- NOX SOUTH YES
2	- NOX SOUTH YES
3	- NOX SOUTH YES
4	- NOX SOUTH YES
5	- NOX SOUTH YES
6	- NOX SOUTH YES

Comments: Due to rain on the 14th, stops #3 thru 6 performed on 17th

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU

NHTSA NUMBER: C65500

Transportation Research Center, Inc.

Make: SUBARU

10820 State Route 347

Model: B9 TRIBECA

East Liberty, Ohio 43319

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 228 (Kpa)

Rear Cold Tire Pressure: 221 (Kpa)

Date Tested: 07/17/06

DATA SHEET 16 - ANTILOCK FUNCTIONAL FAILURE AT LLVW

Testing Conditions: INV DATA, Section 0040, 07/17/06, 09:34:16

Weather Conditions: 82°F Wind: 12 mph 246°

Start Odo.: 601

End Odo.: 607

Schedule:

Initial Brake Temperature: 65-100°C

Initial Speed 100 km/h to zero

6 stops with transmission in neutral

Performance Requirements:

One Stop with:

Stopping Distance less than 85m

Pedal force between 65N and 500N

No Lock-Up allowed longer than 0.1 sec above 15 km/h

Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
1	100.21	84	89	49	56	62.0	61.7	199.41	97.82	9.49	6.00
2	99.71	83	86	51	57	60.5	60.8	181.89	87.04	8.75	5.83
3	99.56	98	96	66	69	59.4	59.9	210.69	89.46	9.31	5.99
4	99.50	91	89	56	63	56.7	57.3	253.00	94.01	10.14	6.22
5	100.24	95	94	61	69	91.5	91.0	222.52	74.02	10.49	5.00
6	99.54	95	92	62	66	64.0	64.6	141.71	76.25	8.49	5.61

STOP # DRIVER VEHICLE STOP COMMENTS
(Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP #	WHEEL LOCK-UP	DIRECTION OF STOP	STAY IN LANE
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES
5	-	NOX	SOUTH YES
6	-	NOX	SOUTH YES

How was the ABS failure induced: REMOVED 30 AMP FUSE FROM BOX UNDER HOOD.

Is brake system indicator lamp activated: YES (X) NO ()

Cannot independently fail variable proportioning valve. Data Sheet 17 not included.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 08/08/06

Approving Laboratory Official: KEN WEBSTER

Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/17/06

DATA SHEET 18 - HYDRAULIC CIRCUIT FAILURE #1 AT LLVW

Testing Conditions: INV DATA, Section 0050, 07/17/06, 11:26:59

Weather Conditions: 86°F Wind: 14 mph 222° Start Odo.: 612 End Odo.: 617

Method of simulating failure: Disconnected frwrmost brake lines @ MC

System Portion Failed: LF & RR

Schedule:

Initial Brake Temperature: 65-100°C
Initial Speed 100 km/h to zero
4 stops with transmission in neutral

Performance Requirements:

One Stop with:
Stopping Distance less than 168m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL	CORRECTED	MAX.	AVG.	MAX.	AVG.
#	SPD	FRONT	FRONT	REAR	REAR	DISTANCE	DISTANCE	PEDAL	PEDAL	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	100.70	47	84	72	38	95.5	94.2	462.26	346.47	7.62	4.01
2	99.24	42	82	50	37	96.2	97.7	476.95	376.90	7.34	4.02
3	99.54	46	89	55	40	92.4	93.3	475.76	371.90	9.07	4.08
4	101.57	44	97	59	39	125.4	121.5	446.32	313.76	8.02	3.62

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Force Needed to Activate Brake Failure Lamp (N): N/A
Fluid Removed (mL) to Activate Brake Failure Lamp: 108

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU

NHTSA NUMBER: C65500

Transportation Research Center, Inc.

Make: SUBARU

10820 State Route 347

Model: B9 TRIBECA

East Liberty, Ohio 43319

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 228 (Kpa)

Rear Cold Tire Pressure: 221 (Kpa)

Date Tested: 07/17/06

DATA SHEET 19 - HYDRAULIC CIRCUIT FAILURE #2 AT LLVW

Testing Conditions: INV DATA, Section 0055, 07/17/06, 13:47:28

Weather Conditions: 87°F Wind: 7 mph 250°

Start Odo.: 620

End Odo.: 626

Method of simulating failure: Disconnected rearmost Brake Lines @ MC

System Portion Failed: RF & LR

Schedule:

Initial Brake Temperature 65-100°C

Initial Speed 100 km/h to zero

4 stops with transmission in neutral

Performance Requirements:

One Stop with:

Stopping Distance less than 168m

Pedal force between 65N and 500N

No Lock-Up allowed longer than 0.1 sec above 15 km/h

Vehicle Must stay in lane of 3.5m

		LEFT	RIGHT	LEFT	RIGHT		CORRECTED	MAX.	AVG.		
STOP	INIT	FRONT	FRONT	REAR	REAR	ACTUAL	DISTANCE	PEDAL	PEDAL	MAX.	AVG.
#	SPD	IBT	IBT	IBT	IBT	DISTANCE	(SAE 299)	FORCE	FORCE	DECEL	DECEL
	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec ²)	(m/sec ²)
1	98.27	73	48	39	59	93.8	97.2	451.91	322.32	7.76	4.00
2	99.57	85	49	38	61	103.0	103.9	333.36	260.82	7.57	3.74
3	99.85	83	52	38	56	95.6	95.8	468.94	376.31	7.51	3.88
4	99.71	94	51	39	59	94.2	94.8	482.59	377.25	7.50	3.92

STOP DRIVER VEHICLE STOP COMMENTS
(Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP #	WHEEL LOCK-UP	DIRECTION OF STOP	STAY IN LANE
1	-	NOX	SOUTH YES
2	-	NOX	SOUTH YES
3	-	NOX	SOUTH YES
4	-	NOX	SOUTH YES

Force Needed to Activate Brake Failure Lamp (N): N/A

Fluid Removed (mL) to Activate Brake Failure Lamp: 108

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 08/08/06

Approving Laboratory Official: KEN WEBSTER

Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/18/06

DATA SHEET 20 - HYDRAULIC CIRCUIT FAILURE #1 AT GVWR

Testing Conditions: INV DATA, Section 0060, 07/18/06, 08:54:12

Weather Conditions: 73°F Wind: 6 mph 164° Start Odo.: 641 End Odo.: 645

Method of simulating failure: Disconnected frwdmost Brake Lines @ MC

System Portion Failed: LF & RR

Schedule:

Initial Brake Temperature 65-100°C
Initial Speed 100 km/h to zero
6 stops with transmission in neutral

Performance Requirements:

One Stop with:
Stopping Distance less than 168m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec²)	AVG. DECEL (m/sec²)
1	99.66	38	91	79	31	100.0	100.7	468.91	390.78	7.27	3.85
2	99.07	38	94	72	32	100.5	102.4	497.65	403.79	7.73	3.75
3	100.38	41	97	69	33	99.0	98.2	482.02	388.55	7.30	3.71
4	99.70	38	88	71	32	99.7	100.3	454.26	391.57	7.01	3.74

STOP #	DRIVER VEHICLE STOP COMMENTS (Wheel Lock-Up - Direction of Stop - Stay in Lane)
1	- NOX SOUTH YES
2	- NOX SOUTH YES
3	- NOX SOUTH YES
4	- NOX SOUTH YES

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/17/06

DATA SHEET 21 - HYDRAULIC CIRCUIT FAILURE #2 AT GVWR

Testing Conditions: INV DATA, Section 0065, 07/17/06, 15:15:09

Weather Conditions: 88°F Wind: 12 mph 175° Start Odo.: 629 End Odo.: 632

Method of simulating failure: Disconnected Rearmost Brake Lines @ MC

System Portion Failed: RF & LR

Schedule:

Initial Brake Temperature 65-100°C
Initial Speed 100 km/h to zero
4 stops with transmission in neutral

Performance Requirements:

One Stop with:
Stopping Distance less than 168m
Pedal force between 65N and 500N
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

STOP #	INIT SPD (kph)	LEFT	RIGHT	LEFT	RIGHT	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
		FRONT IBT (°C)	FRONT IBT (°C)	REAR IBT (°C)	REAR IBT (°C)						
1	99.42	91	46	41	70	100.0	101.2	471.90	400.11	7.19	3.90
2	99.44	91	51	44	68	101.6	102.7	507.78	396.74	7.05	3.69
3	99.88	85	48	44	68	100.6	100.9	483.38	402.23	6.92	3.93
4	99.48	92	49	45	73	98.5	99.6	484.47	380.17	8.86	3.74

STOP # DRIVER VEHICLE STOP COMMENTS
(Wheel Lock-Up - Direction of Stop - Stay in Lane)

1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU

NHTSA NUMBER: C65500

Transportation Research Center, Inc.

Make: SUBARU

10820 State Route 347

Model: B9 TRIBECA

East Liberty, Ohio 43319

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 228 (Kpa)

Rear Cold Tire Pressure: 221 (Kpa)

Date Tested: 07/18/06

DATA SHEET 22 - ANTILOCK FUNCTIONAL FAILURE AT GVWR

Testing Conditions: INV DATA, Section 0070, 07/18/06, 11:20:17

Weather Conditions: 82°F Wind: 4 mph 243°

Start Odo.: 649

End Odo.: 656

Schedule:

Initial Brake Temperature 65-100°C

Initial Speed 100 km/h to zero

6 stops with transmission in neutral

Performance Requirements:

One Stop with:

Stopping Distance less than 85m

Pedal force between 65N and 500N

No Lock-Up allowed longer than 0.1 sec above 15 km/h

Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT		CORRECTED	MAX.	AVG.		
#	SPD	FRONT	FRONT	REAR	REAR	ACTUAL	DISTANCE	PEDAL	PEDAL	MAX.	AVG.
	(kph)	IBT	IBT	IBT	IBT	DISTANCE	(SAE 299)	FORCE	FORCE	DECEL	DECEL
		(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec²)	(m/sec²)
1	99.40	73	84	84	70	68.3	69.1	292.47	120.28	8.39	5.41
2	99.75	83	93	75	63	66.6	66.9	324.28	115.43	8.66	5.59
3	100.34	79	91	64	56	62.9	62.4	276.24	127.85	8.88	5.88
4	100.53	82	94	62	57	60.9	60.3	286.28	129.04	9.34	6.04
5	100.57	88	98	64	61	64.8	64.1	287.22	127.06	8.99	5.82
6	100.74	85	96	66	63	63.1	62.1	260.70	120.93	8.48	5.72

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

How was the ABS failure induced: REMOVED 30 AMP FUSE FROM BOX UNDER HOOD.

Is brake system indicator lamp activated: YES (X) NO ()

Cannot independently fail variable proportioning valve. Data Sheet 23 not included.

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 08/08/06

Approving Laboratory Official: KEN WEBSTER

Date: 08/17/06

Vehicle: 2006 SUBARU

Make: SUBARU

Model: B9 TRIBECA

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 228 (Kpa)

Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.

10820 State Route 347

East Liberty, Ohio 43319

Date Tested: 07/18/06

DATA SHEET 24 - BRAKE POWER UNIT OR PWR ASSIST UNIT IN/OP AT GVWR

Testing Conditions: INV DATA, Section 0080, 07/18/06, 13:35:19

Weather Conditions: 85°F Wind: 9 mph 315°

Start Odo.: 659

End Odo.: 666

Failure Simulation: Disconnect primary source of power.

Method of rendering inoperative: Remove Engine Vacuum Hose at Booster

Schedule:

Initial Brake Temperature 65-100°C

Initial Speed 100 km/h to zero

6 stops with transmission in neutral

Performance Requirements:

One Stop with:

Stopping Distance less than 168m

Pedal force between 65N and 500N

No Lock-Up allowed longer than 0.1 sec above 15 km/h

Vehicle Must stay in lane of 3.5m

STOP	INIT	LEFT	RIGHT	LEFT	RIGHT		CORRECTED	MAX.	AVG.		
#	SPD	FRONT	FRONT	REAR	REAR	ACTUAL	DISTANCE	PEDAL	PEDAL	MAX.	AVG.
	(kph)	IBT	IBT	IBT	IBT	DISTANCE	(SAB 299)	FORCE	FORCE	DECEL	DECEL
		(°C)	(°C)	(°C)	(°C)	(meter)	(meter)	(N)	(N)	(m/sec ²)	(m/sec ²)
1	99.80	71	80	64	56	175.3	176.0	498.30	462.08	3.88	2.24
2	100.49	86	96	77	67	166.6	165.0	496.42	464.75	4.11	2.50
3	99.41	88	92	74	68	167.6	169.6	495.33	469.99	4.19	2.55
4	100.76	75	84	69	63	165.0	162.5	494.04	466.98	4.22	2.62
5	99.55	79	84	71	67	160.6	162.0	493.20	459.41	4.89	2.66
6	99.79	90	96	79	74	155.6	156.3	495.62	472.07	4.62	2.74

STOP DRIVER VEHICLE STOP COMMENTS
(Wheel Lock-Up - Direction of Stop - Stay in Lane)

1	-	NOX	SOUTH	YES
2	-	NOX	SOUTH	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES

Is the brake system indicator lamp activated: YES () NO (X)

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 08/08/06

Approving Laboratory Official: KEN WEBSTER

Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/18/06

DATA SHEET 25 - PARKING BRAKE AT GVWR

Testing Conditions: INV DATA, Section 0085, 07/18/06, 16:01:27

Parking brake: AUTOMATIC TR Non-service type: FOOT-OPERATED

Service type: N/A

Weather Conditions: 75°F Wind: 8 mph 65°

Start Odo.: 677

End Odo.: 677

Test Weight: Total:2585kg

Front:1227kg

Rear:1358kg

Schedule:

Initial Brake Temperature <100°C or (Ambient temp.
if non-service brake type materials)

Loaded to GVWR with transmission in neutral

Drive onto 20% slope in forward and reverse directions.

Performance Requirements:

Up to Three Applies in each direction:

Parking brake must hold the vehicle stationary

in both directions for 5 minutes each.

Pedal force: Hand control: <400 N

Foot control: <500 N

NOTE: For vehicles with parking brake systems not utilizing the service brake friction elements, the friction elements of such systems are to be burnished prior to parking brake tests according to the manufacturer's published recommendation as furnished to the purchaser. If no recommendations are furnished, test the system in an unburnished condition. If recommendations are furnished, record method used.

APPLY #	MAX SERVICE FORCE (N)	MAX P-BRAKE FORCE (N)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	AVG REAR IBT (°C)	DRIVER VEHICLE STOP COMMENTS (Direction of Stop (Up/Down) - Brake holds/fails)
1	66.0	502.9	56	51	53.3	UPHILL: DID NOT HOLD.
2	57.0	494.1	59	53	56.1	DOWNHILL: MOVED APPROXIMATELY 6 FEET BEFORE HOLDING.
3	45.3	499.8	59	54	56.9	0 REAPPLY UPHILL HOLDS 20%
4	56.1	474.9	49	44	46.9	0 REAPPLY DOWNHILL HOLDS 20%

Comments: SEE APPENDIX C.

Is brake system indicator lamp activated: YES (X) NO ()

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 08/08/06

Approving Laboratory Official: KEN WEBSTER

Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 227.5 (Kpa)
Rear Cold Tire Pressure: 220.6 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/19/06

DATA SHEET 26 - HEATING SNUBS AT GVWR

Testing Conditions: INV DATA, Section 0090, 07/19/06, 11:36:25

Schedule:

Conduct 15 snubs from 120 Km/h or 80% Vmax, whichever is slower, to 1/2 of initial speed.
Attain required decel in 1 second and maintain that decel.
Interval between snubs is 45 seconds and WOT to initial speed.

Performance Requirements:

Initial IBT for first snub is 55-65°C
Maintain 3.0 m/s/s deceleration
Vehicle Must stay in lane of 3.5m

SNUB	AVG. DECEL # (m/sec ²)	Time Between Snubs (second)	AVG. PEDAL FORCE (N)	LEFT FRONT IBT (°C)	RIGHT FRONT IBT (°C)	LEFT REAR IBT (°C)	RIGHT REAR IBT (°C)	INIT SPD (kph)
1	3.70	--NA--	55.41	58	59	52	49	119.06
2	3.16	46	33.97	92	92	99	89	120.09
3	3.07	43	31.64	126	125	144	128	120.91
4	2.92	44	31.64	151	154	184	162	120.23
5	2.75	44	26.69	174	180	214	187	118.73
6	2.89	44	28.97	195	202	237	208	120.50
7	2.81	44	25.11	214	221	255	225	118.70
8	2.99	44	25.85	231	238	270	239	119.27
9	2.84	44	23.67	244	253	282	251	119.89
10	3.18	44	27.88	257	266	291	260	120.43
11	2.98	44	25.60	268	277	300	268	120.16
12	2.76	44	27.19	271	284	305	273	120.87
13	2.91	44	25.40	284	292	308	276	119.17
14	2.93	45	26.54	291	297	311	281	119.78
15	2.77	44	27.53	299	303	314	286	121.26

STOP DRIVER VEHICLE SNUB COMMENTS
(Wheel Lock-Up - Direction of Stop - Stay in Lane)

STOP #	WHEEL LOCK-UP	DIRECTION OF STOP	STAY IN LANE	
1	-	NOX	NORTH	YES
2	-	NOX	EAST	YES
3	-	NOX	SOUTH	YES
4	-	NOX	SOUTH	YES
5	-	NOX	SOUTH	YES
6	-	NOX	SOUTH	YES
7	-	NOX	WEST	YES
8	-	NOX	NORTH	YES
9	-	NOX	NORTH	YES
10	-	NOX	NORTH	YES
11	-	NOX	NORTH	YES
12	-	NOX	EAST	YES
13	-	NOX	SOUTH	YES
14	-	NOX	SOUTH	YES
15	-	NOX	SOUTH	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/19/06

DATA SHEET 27 - HOT PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0095, 07/19/06, 11:47:13

Schedule:

Make 2 stops from 100 kph
Pedal Force: 1st stop is done with an average force
less than the average recorded in the
shortest GVWR Cold Effectiveness stop.
2nd stop is done with a force less
than 500 N.

No Lock-Up allowed longer than 0.1 sec above 15 km/h.

Distance Requirements are based on the following:

shortest stop in Data Sheet 11 is: 3
Initial speed of stop: 99.43 (kph)
Actual distance of stop: 49.4 (meter)
Average pedal force: 386.0 (N)

Performance Requirements:

Stop Number 1 must be less than: 75.7 (meter)
In addition the stopping distance for at least one of the
of the two hot stops must be less than: 89 (meter)

		LEFT	RIGHT	LEFT	RIGHT		CORRECTED	MAX.	AVG.		
STOP	INIT	FRONT	FRONT	REAR	REAR	ACTUAL	DISTANCE	PEDAL	PEDAL	MAX.	AVG.
#	(kph)	(°C)	(°C)	(°C)	(°C)	(meter)	(SAE 299)	FORCE	FORCE	DECEL	DECEL
							(meter)	(N)	(N)	(m/sec ²)	(m/sec ²)
1	98.86	313	313	326	296	50.1	51.3	425.22	301.17	12.69	7.50
2	100.38	324	325	336	311	54.4	54.0	424.13	303.05	11.80	6.66

STOP	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	WEST	YES
2	-	NOX	WEST	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU
Make: SUBARU
Model: B9 TRIBECA
Body Style: 5-DR. MPV
Front Cold Tire Pressure: 228 (Kpa)
Rear Cold Tire Pressure: 221 (Kpa)

NHTSA NUMBER: C65500

Transportation Research Center, Inc.
10820 State Route 347
East Liberty, Ohio 43319

Date Tested: 07/19/06

DATA SHEET 28 - BRAKE COOLING STOPS AT GVWR

Testing Conditions: INV DATA, Section 0100, 07/19/06, 11:49:55

Schedule:

Initial Brake Temperature:
Achieved on completing Hot Performance
Initial Speed 50 km/h to zero
4 stops with transmission in gear

Performance Requirements:

Constant Decel rate: 3.0 m/s/s
Pedal force adjusted as necessary
No Lock-Up allowed longer than 0.1 sec above 15 km/h
Vehicle Must stay in lane of 3.5m

	INIT	AVG.	AVG.	LEFT	RIGHT	LEFT	RIGHT
	SPD	DECEL	PEDAL	FRONT	FRONT	REAR	REAR
STOP			FORCE	IBT	IBT	IBT	IBT
#	(kph)	(m/sec ²)	(N)	(°C)	(°C)	(°C)	(°C)
1	49.57	3.07	36.00	301	306	297	286
2	49.98	2.78	31.05	259	273	247	239
3	49.75	2.76	31.44	232	245	209	203
4	50.04	2.66	29.96	196	220	181	175

STOP	DRIVER VEHICLE STOP COMMENTS		
#	(Wheel Lock up	- Direction of Stop	- Stay in Lane)
1	-	NOX	WEST YES
2	-	NOX	NORTH YES
3	-	NOX	NORTH YES
4	-	NOX	EAST YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY Observer: NONE
Recorded Data Processed by: CHUCK JENKINS Date: 08/08/06
Approving Laboratory Official: KEN WEBSTER Date: 08/17/06

Vehicle: 2006 SUBARU

NHTSA NUMBER: C65500

Transportation Research Center, Inc.

Make: SUBARU

10820 State Route 347

Model: B9 TRIBECA

East Liberty, Ohio 43319

Body Style: 5-DR. MPV

Front Cold Tire Pressure: 228 (Kpa)

Rear Cold Tire Pressure: 221 (Kpa)

Date Tested: 07/19/06

DATA SHEET 29 - RECOVERY PERFORMANCE AT GVWR

Testing Conditions: INV DATA, Section 0105, 07/19/06, 11:56:58

Weather Conditions: 78°F Wind: 6 mph 96°

Start Odo.: 679

End Odo.: 696

Schedule:

Make 2 stops from 100 kph

Pedal Force: 1st stop is done with an average force less than the average recorded in the shortest GVWR Cold Effectiveness stop.
2nd stop is done with a force less than 500 N.

No Lock-Up allowed longer than 0.1 sec above 15 km/h.

Distance Requirements are based on the following:

shortest stop in Data Sheet 11 is: Stop3

Initial speed of stop: 99.43 (kph)

Actual distance of stop: 49.4 (meter)

Average pedal force: 386.0 (N)

Performance Requirements:

One of the two stops must be within the following limits:

Upper limit of corrected stopping distance: 66.3 (meter)

Lower limit of corrected stopping distance: 28.8 (meter)

STOP #	INIT	LEFT	RIGHT	LEFT	RIGHT	ACTUAL DISTANCE (meter)	CORRECTED DISTANCE (SAE 299) (meter)	MAX. PEDAL FORCE (N)	AVG. PEDAL FORCE (N)	MAX. DECEL (m/sec ²)	AVG. DECEL (m/sec ²)
	SPD (kph)	FRONT IBT (°C)	FRONT IBT (°C)	REAR IBT (°C)	REAR IBT (°C)						
1	100.30	181	208	168	163	48.4	48.1	412.94	290.67	13.59	7.45
2	99.77	196	228	184	182	47.9	48.1	452.60	310.33	12.58	7.67

STOP #	DRIVER VEHICLE STOP COMMENTS			
#	(Wheel Lock-Up - Direction of Stop - Stay in Lane)			
1	-	NOX	EAST	YES
2	-	NOX	EAST	YES

DATA INDICATES COMPLIANCE: YES (X) NO ()

Driver: KAREN EASTERDAY

Observer: NONE

Recorded Data Processed by: CHUCK JENKINS

Date: 08/08/06

Approving Laboratory Official: KEN WEBSTER

Date: 08/17/06

DATA SHEET 30 (Part 1 of 5)
6.0 Test Completion Inspection (7.17)

VEHICLE: 2006 Subaru B9 Tribeca NHTSA NO.: C65500

DATE: 07/21/06

System Integrity (S5.6)

Each vehicle shall meet the complete performance requirements of this standard without:

(a) Detachment or fracture of any component of the braking system such as brake springs and brake shoes or disc pad facings, other than minor cracks, that do not impair attachment of the friction facings. All mechanical components of the braking system shall be intact and functional. Friction facing tearout (complete detachment of lining) shall not exceed 10 percent of the lining on any single frictional element.

(b) Any visible brake fluid or lubricant on the friction surface of the brake or leakage at the master cylinder or brake power unit reservoir cover, seal, and filler openings.

Friction Material Condition: Primary/Inner		Friction Material Condition: Secondary/Outer	
LF	Normal Appearance & Color	LF	Normal Appearance & Color
RF	Normal Appearance & Color	RF	Normal Appearance & Color
LR	Normal Appearance & Color	LF	Normal Appearance & Color
RR	Normal Appearance & Color	RR	Normal Appearance & Color
Drum (or Rotor) Condition:		Brake Fluid/Lubricant Inside Brakes:	
LF	Normal Appearance & Color	LF	None
RF	Normal Appearance & Color	RF	None
LR	Normal Appearance & Color	LR	None
RR	Normal Appearance & Color	RR	None
Hydraulic Component Condition:		Mechanical Component Condition:	
LF	Good	Brk/Pedal	Good
RF	Good	Power Brk	Good
LR	Good	Stop/Lamp	Good
RR	Good	Linkage	Good
M/Cyl	Good	Other	NA

COMPLIANCE: Yes X No

Comments: None.

Technician: K. Easterday

DATA SHEET 30 (Part 2 of 5)
TEST COMPLETION INSPECTION (S7.17)

VEHICLE: 2006 Subaru B9 Tribeca; NHTSA NO.: C65500; GVWR: 2586 kg
 MASTER CYLINDER RESERVOIR:

DATE	07/20/06	Requirements	Pass	Fail
Reservoir Compartments (S5.4.1)				
(1) Does master cylinder have a reservoir compartment for each brake subsystem?	<u>Yes</u>	Master cylinder shall have a reservoir compartment for each subsystem.	X	
	No			
(2) Does loss of fluid in one compartment result in complete loss from another compartment?	Yes	Loss of fluid from one compartment shall not cause complete loss from another compartment.	X	
	<u>No</u>			
Reservoir Capacity (S5.4.2)				
Shall conform to requirements (1) or (2), state units:				
(1) For reservoirs having completely separate compartments for each subsystem (two separate, independent reservoirs):				
Subsystem 1 Subsystem reservoir capacity		Each compartment (reservoir) shall have a minimum capacity equivalent to the fluid displacement resulting when all wheel cylinders or caliper pistons serviced by that independent compartment/reservoir moves from a new lining, fully retracted position to a fully worn, properly adjusted, fully applied position. (Use Data Sheet 31 and Appendix 1A)	NA	NA
Subsystem 1 Fluid displaced from new to worn lining				
Subsystem 2 Subsystem reservoir capacity			NA	NA
Subsystem 2 Fluid displaced from new to worn lining				
2) For reservoirs utilizing a portion of the reservoir for a common supply to two or more subsystems:				
Total minimum capacity for the entire master cylinder reservoir (includes individual compartment reservoirs)	278 ml	Shall have total minimum capacity for entire reservoir for displacement resulting from all subsystem wheel cylinders or caliper positions moving from new lining to full worn condition as above.	X	
Fluid displaced from new to worn linings (ALL linings) *Value calculated from Data Sheet 31	163.4 ml*			

Comments: None

DATA SHEET 30 (Part 3 of 5)
TEST COMPLETION INSPECTION (\$7.18)

VEHICLE: 2006 Subaru B9 Tribeca; NHTSA NO.: C65500; GVWR: 2586 kg

MASTER CYLINDER RESERVOIR:

DATE	07/20/06		Requirements	Pass	Fail
Master Cylinder Piston Displacement(\$5.4.2) [If Common Reservoir Supply - continued from previous page]					
Fluid displaced by three strokes of master cylinder piston for Primary (Subsystem No. 1)	25 ml	Individual partial compartments of reservoir shall each have a minimum of fluid equal to at least the volume displaced by the master cylinder piston servicing the subsystem during a <u>full stroke</u> of the piston. NOTE: Procedure uses three strokes to ensure an accurate measurement.			
Fluid displaced by three strokes of master cylinder piston for Secondary (Subsystem No. 2)	28 ml				
Fluid displaced per stroke, Primary	8.3 ml				
Fluid displaced per stroke, Secondary	9.3 ml				
Fluid available in partial compartment Subsystem No. 1	42 ml				
Fluid available in partial compartment Subsystem No. 2	46 ml				
Brake Power Unit Reservoir (\$5.4.2)					
Volume displaced in charging system piston or accumulator to normal operating pressure plus wheel cylinder or caliper piston displacement.		Shall have a capacity at least equal to fluid displacement required to charge the system pistons on accumulators to normal operating pressure <u>plus</u> displacement when wheel cylinders or caliper pistons move from new lining to full worn condition as above.	NA		
Reservoir Labeling (\$5.4.3)					
Exact copy of reservoir label: On master cylinder reservoir cap: <u>WARNING, CLEAN FILLER CAP BEFORE REMOVING, USE ONLY DOT3 FLUID FROM A SEALED CONTAINER.</u>		Label shall read: "Warning, clean filler cap before removing; use only * fluid from a sealed container". * Fluid type specified in 49 CFR 571.116	X		
Measure letter height	4.0 mm	Letters shall be at least 3.2 mm/ 0.125" high	X		
Describe label attachment method and location. <u>Embossed on the top of the master cylinder reservoir filler cap.</u>		Lettering shall be permanently affixed, engraved or embossed and located so as to be visible by direct view either on or within 100 mm/3.94 inches of the brake fluid reservoir filler plug or cap.	X		
Does the lettering contrast with the background?	Yes	If label is not engraved or embossed, letters shall be of a color that contrasts with the background	X		
	<u>No</u>				

Comments: None

Technician: K. Easterday

DATA SHEET 30 (Part 4 of 5)
TEST COMPLETION INSPECTION (S7.18)

VEHICLE: 2006 Subaru B9 Tribeca; NHTSA NO.: C65500; DATE: 07/20/06
BRAKE SYSTEM WARNING INDICATOR (S5.5)

CONDITION	ANSWER	REQUIREMENTS	PASS	FAIL
Brake Systems Indicator Lamp Function Check (S5.5.2) (Bulb and systems check)				
Describe location of brake indicator lamp: <u>Center of instrument cluster.</u>	NA	Shall be in front, and in clear view, of driver.	X	
Does lamp light with ignition (start) switch at ON/RUN?	Yes	Automatic activation when ignition switch is "on" when engine not running , or ignition between "on" and "start" if is manufacturer check position- OR -single manual action by driver	X	
Does lamp light with ignition between ON and Start?	Yes			
Brake check description in owner's manual?	Yes	Manufacturer shall explain the brake check function test procedure in the owner's manual.	X	
Brake System Warning Indicator ACTIVATION (S5.5.1) DURATION (S5.5.3) FUNCTION (S5.5.4)				
CONDITION	Light ON?	REQUIREMENT	PASS	FAIL
A. In event of hydraulic leak (1) On or before appearance of pressure differential of 218 psi (split system)	NA	When ignition (Start) switch is ON , lamp must light whenever (A), (B), (C), or (D) occurs. In addition, if service brake system is not a split system, audible warning must be activated when any condition in (A) exists. Visual warning indicator for non-split systems must be flashing.	X	
(2) If any reservoir falls below either "safe" level or 25% of capacity, whichever is greater.	Yes			
(3) On or before supply pressure to brake power unit falls to 50%	N/A			
B. Electrical functional failure in an antilock or variable brake proportioning system.	Yes		X	
C. Application of the parking brake.	Yes			
D. Brake lining wear-out if optical warning	NA			
<u>Must have Audible alarm if not split system</u> and a condition in (a) above exists?	NA			
If condition (A) (2) above does not exist, then fluid reservoir must be transparent for fluid check without the need for reservoir to be opened? (S5.4.4)	NA			
Indicator lamps remain activated as long as condition exists - ignition "on", and engine on or off? _____ (S5.5.3 DURATION))	Yes			
Visual warning – continuous or flashing? Audible warning –continuous or flashing?	Yes-Cont. NA			

Comments: None

Technician: K. Easterday

DATA SHEET 30 (Part 4 of 5)
TEST COMPLETION INSPECTION (S7.18)

VEHICLE: 2006 Subaru B9 Tribeca; NHTSA NO.: C65500; DATE: 07/20/06
BRAKE SYSTEM WARNING INDICATOR (S5.5)

CONDITION	ANSWER	REQUIREMENTS	PASS	FAIL
Brake Systems Indicator Lamp Function Check (S5.5.2) (Bulb and systems check)				
Describe location of brake indicator lamp: <u>Center of instrument cluster.</u>	NA	Shall be in front, and in clear view, of driver.	X	
Does lamp light with ignition (start) switch at ON/RUN?	Yes	Automatic activation when ignition switch is "on" when engine not running , or ignition between "on" and "start" if is manufacturer check position- OR -single manual action by driver	X	
Does lamp light with ignition between ON and Start?	Yes			
Brake check description in owner's manual?	Yes	Manufacturer shall explain the brake check function test procedure in the owner's manual.	X	
Brake System Warning Indicator ACTIVATION (S5.5.1) DURATION (S5.5.3) FUNCTION (S5.5.4)				
CONDITION	Light ON?	REQUIREMENT	PASS	FAIL
A. In event of hydraulic leak (1) On or before appearance of pressure differential of 218 psi (split system)	NA	When ignition (Start) switch is ON , lamp must light whenever (A), (B), (C), or (D) occurs. In addition, if service brake system is not a split system, audible warning must be activated when any condition in (A) exists. Visual warning indicator for non-split systems must be flashing.	X	
(2) If any reservoir falls below either "safe" level or 25% of capacity, whichever is greater.	Yes			
(3) On or before supply pressure to brake power unit falls to 50%	N/A			
B. Electrical functional failure in an antilock or variable brake proportioning system.	Yes		X	
C. Application of the parking brake.	Yes			
D. Brake lining wear-out if optical warning	NA			
<u>Must have Audible alarm if not split system</u> and a condition in (a) above exists?	NA			
If condition (A) (2) above does not exist, then fluid reservoir must be transparent for fluid check without the need for reservoir to be opened? (S5.4.4)	NA			
Indicator lamps remain activated as long as condition exists - ignition "on", and engine on or off? _____ (S5.5.3 DURATION))	Yes			
Visual warning – continuous or flashing? Audible warning –continuous or flashing?	Yes-Cont. NA			

Comments: None

Technician: K. Easterday

DATA SHEET 31 (Part 1 of 2)
CALCULATION OF MINIMUM RESERVOIR VOLUME REQUIREMENTS
VEHICLE: 2006 Subaru B9 Tribeca; NHTSA NO.: C65500; DATE: 07/20/06

BRAKE		LINING		
LOCATION	TYPE	DESCRIPTION	MINIMUM THICKNESS	THICKNESS TO FULLY WORN (1) mm*
Left Front	Drum	Leading	Pre-test 10.67 mm	1.5
		Primary	Post Test 10.24 mm	
		Inboard X	Δ 0.43 mm	
	Disc X	Trailing	Pre-test 10.64 mm	1.5
		Secondary	Post Test 10.26 mm	
		Outboard X	Δ 0.38 mm	
LINING CLEARANCE:	Diametrical (2): N/A	Inboard – 0.3 mm.	Outboard – 0.3 mm.	
WHEEL CYLINDER DIAMETER (3) N/A		CALIPER PISTON DIAMETER (3): 42.82 mm (x2 piston).		
SHOE CAGE DIAMETER (4) <u>N/A</u> ; CENTER POINT OF BRAKE ASSY TO CENTER POINT OF W.C. <u>N/A</u>				
Right Rear	Drum	Leading	Pre-test 10.87 mm	1.5
		Primary	Post Test 10.41 mm	
		Inboard X	Δ 0.46 mm	
	Disc X	Trailing	Pre-test 10.87 mm	1.5
		Secondary	Post Test 10.57 mm	
		Outboard X	Δ 0.30 mm	
LINING CLEARANCE:	Diametrical (2) N/A	Inboard – 0.3 mm.	Outboard – 0.3 mm.	
WHEEL CYLINDER DIAMETER (3): N/A		CALIPER PISTON DIAMETER (3): 40.39 mm (x1 piston).		
SHOE CAGE DIAMETER (4): N/A		CENTER POINT OF BRAKE ASSY TO CENTER PT. OF W.C.: N/A		
CIRCUIT #1 CONSISTS OF:	LF– X	LR	RF	RR – X
CIRCUIT #2 CONSISTS OF:	LF	LR – X	RF – X	RR
(1) MFRS. RECOMMENDATIONS – FRONT and REAR: 1.5 mm.				
(2) REAR -0.3 mm FRONT – 0.3 mm				
(2) DRUM BRAKES, MEASURED AT HORIZONTAL CENTERLINE: N/A.				
(3) MFRS. DATA: FRONT – 42.8 mm (x2), REAR – 40.5 mm (x1)				
(4) RESET POSITION: N/A.				

Comments: None.

Lining thickness, Manufacturer's data: Front and Rear: 11 mm.

Technician: K. Easterday

DATA SHEET 31 – SECTION CONTINUED (Part 2 of 2)VEHICLE: 2006 Subaru B9 Tribeca; NHTSA NO.: C65500; DATE: 08/08/06**Procedure and Example for Determining Master Cylinder Volume Requirement**

The procedure followed for determining the minimum volume requirements is outlined in the example shown below. The required data is taken from the previous page.

DISC BRAKES

Volume Required, $V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times [\pi (D^2)]/4$, where –

V_r = Volume required per wheel
 Δt = Change in thickness (average)
 i = Inboard
 o = Outboard
 D = Caliper cylinder diameter
 c = Average clearance

Using the above equations, the volume requirements for Subsystem No. 1 (LF, RR) and Subsystem No. 2 (RF, LR) were calculated utilizing measured and/or manufacturer's provided data to create the greatest displacement, as shown below:

Disc Brake:
 (Front)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi D^2}{4}$$

$$\Delta t_i = 9.5 \text{ mm}$$

$$\Delta t_o = 9.5 \text{ mm}$$

$$t_{ic} + t_{oc} = 0.6 \text{ mm}$$

$$D = 42.82 \text{ mm}$$

$$V_r = (9.5 + 0.3 + 9.5 + 0.3) \frac{\pi (42.82)^2}{4}$$

$$= 19.6 (1440.07)$$

$$= 28225.3 \text{ mm}^3 = 28.2 \text{ ml (x 2 piston) = 56.5 ml}$$

Disc Brake:
 (Rear)

$$V_r = (\Delta t_i + t_{ic} + \Delta t_o + t_{oc}) \times \frac{\pi D^2}{4}$$

$$\Delta t_i = 9.5 \text{ mm}$$

$$\Delta t_o = 9.5 \text{ mm}$$

$$t_{ic} + t_{oc} = 0.6 \text{ mm}$$

$$D = 40.5 \text{ mm}$$

$$V_r = (9.5 + 0.3 + 9.5 + 0.3) \frac{\pi (40.5)^2}{4}$$

$$= 19.6 (1288.25)$$

$$= 25249.7 \text{ mm}^3 = 25.3 \text{ ml}$$

For System 1 (LF, RR)

$$V_{r1} = 56450.6 \text{ mm}^3 + 25249.7 \text{ mm}^3 = 91295.4 \text{ mm}^3$$

$$V_{r1} = 81700.3 \text{ mm}^3 = (81.7 \text{ ml})$$

For System 2 (RF, LR)

$$V_{r2} = V_{r1}$$

$$V_{r2} = 81700.3 \text{ mm}^3 = (81.7 \text{ ml})$$

$$\text{TOTAL VOLUME REQUIRED} = V_t = V_{r1} + V_{r2} = 163400.6 \text{ mm}^3 = 163.4 \text{ ml}^*$$

Section 6.0

Photographs



2006
SUBARU B9
TRIBECA
5DR. MPV
NHTSA NO.
C65500
JULY 2006



TOU HEAVY INDUSTRIES LTD.

型式

4S4WX83C564403897

WXEAY3U

オプションコード
Option CODE

UFXX

F40

エンジン型式
Engine type

EZ30DBL1GE

39J

オプション番号
Option type

TG5C90YAAA

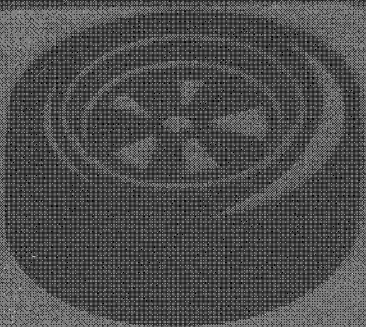
GAWR 3016LB(1368KG) MFD BY FUJI HEAVY INDUSTRIES LTD.
GAWR R 3340LB(1515KG) WITH P255/55R18 TIRES. 18 X 8JJ RIMS. AT 230 KPA (33 PSI) COL
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE
SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON
DATE OF MANUFACTURE SHOWN ABOVE. DATE: 05/05
18 X 8JJ RIMS. AT 220 KPA (32 PSI) COL

TYPE: MPV



ASSEMBLED BY SIA INC.

MADE IN U.S.A.



TIRE AND LOADING INFORMATION

SEATING CAPACITY : TOTAL 5

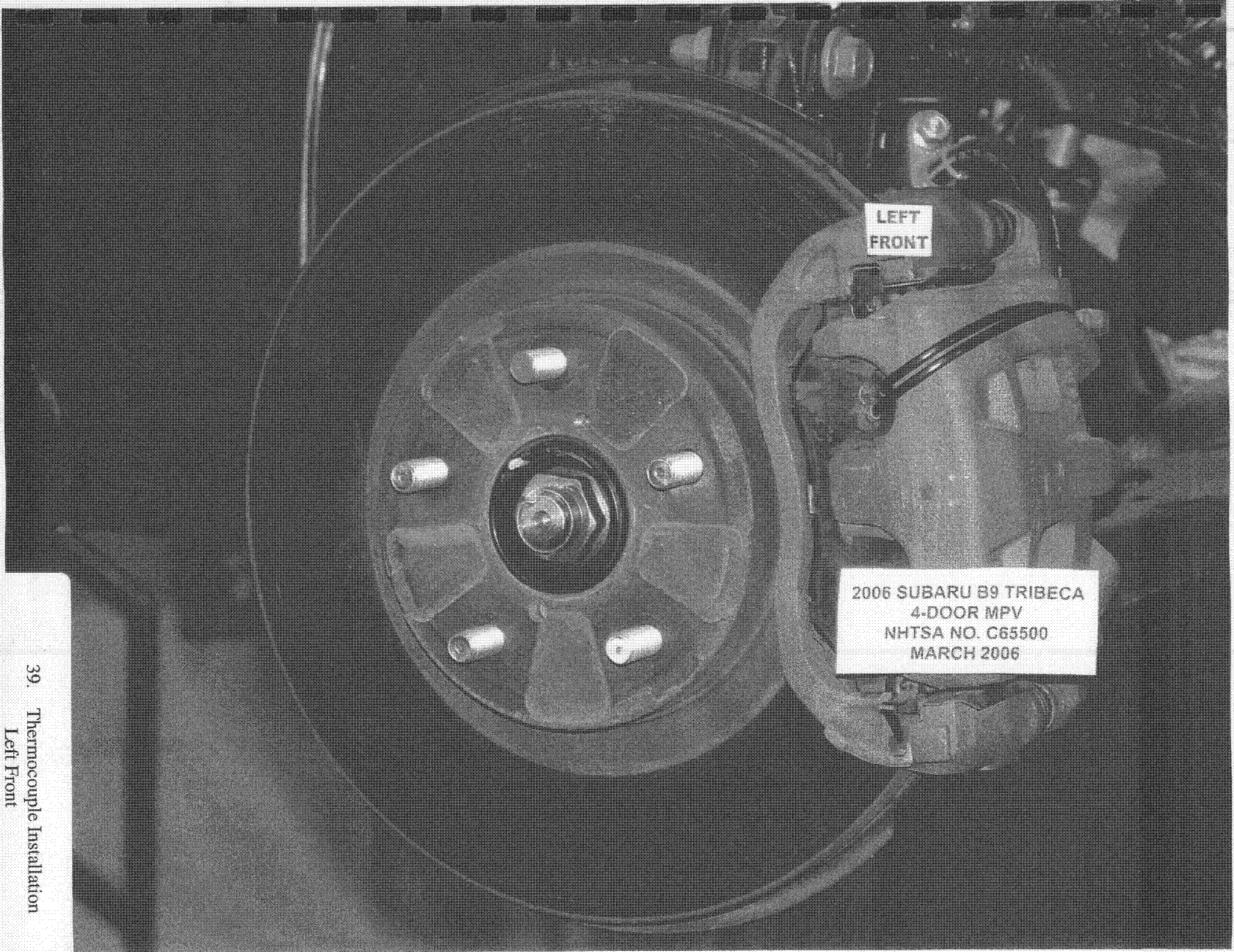
FRONT 2 : REAR 3

The combined weight of occupants and cargo should never exceed 408kg or 900 lbs.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE	
	FRONT	REAR
P255/55R18	230 kPa, 33 PSI	220 kPa, 32 PSI
COMPACT SPARE TIRE	COLD TIRE INFLATION PRESSURE	
T165/80R17	420 kPa, 60 PSI	

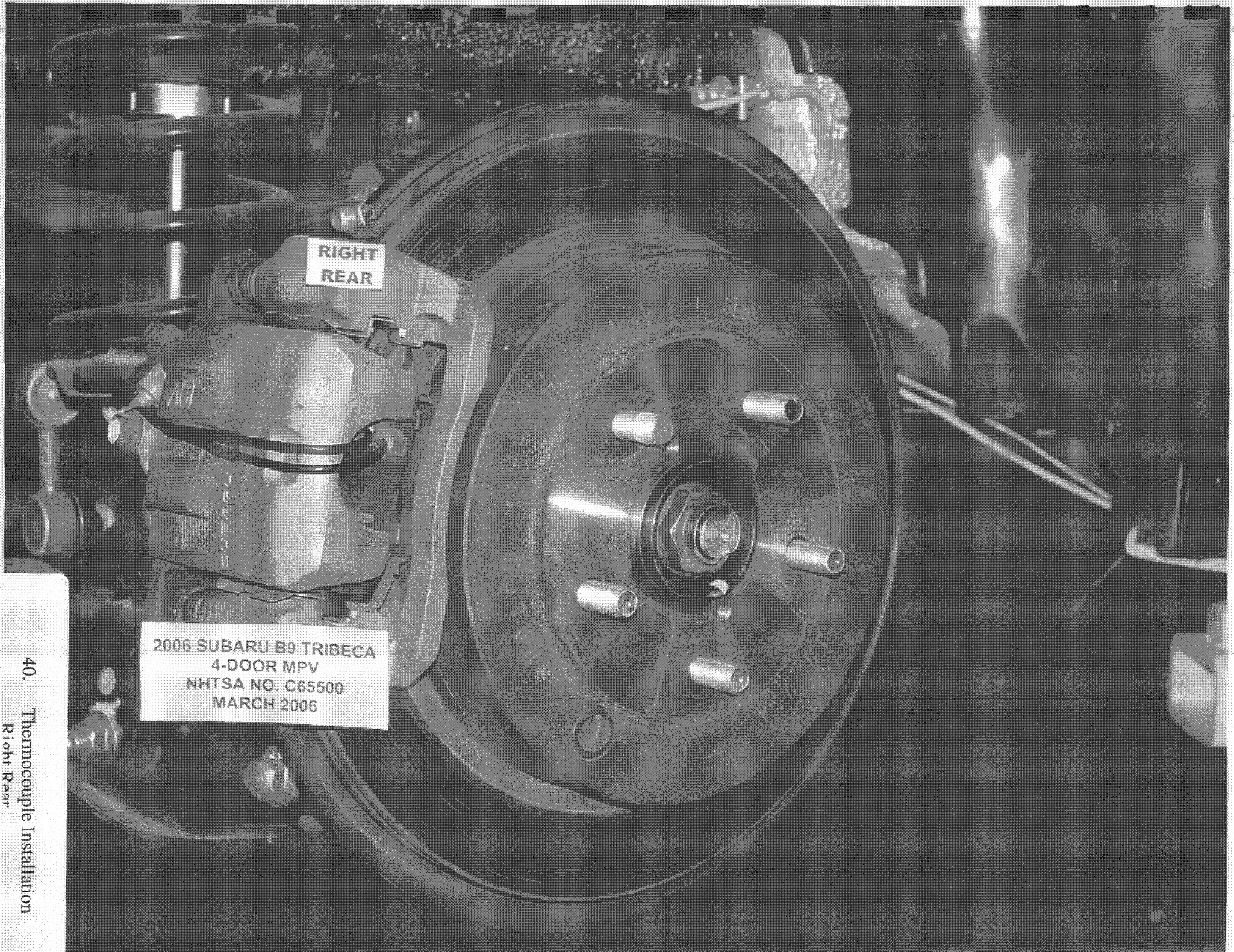
SEE OWNER'S MANUAL FOR
ADDITIONAL INFORMATION





LEFT
FRONT

2006 SUBARU B9 TRIBECA
4-DOOR MPV
NHTSA NO. C65500
MARCH 2006



2006 SUBARU B9 TRIBECA
4-DOOR MPV
NHTSA NO. C65500
MARCH 2006

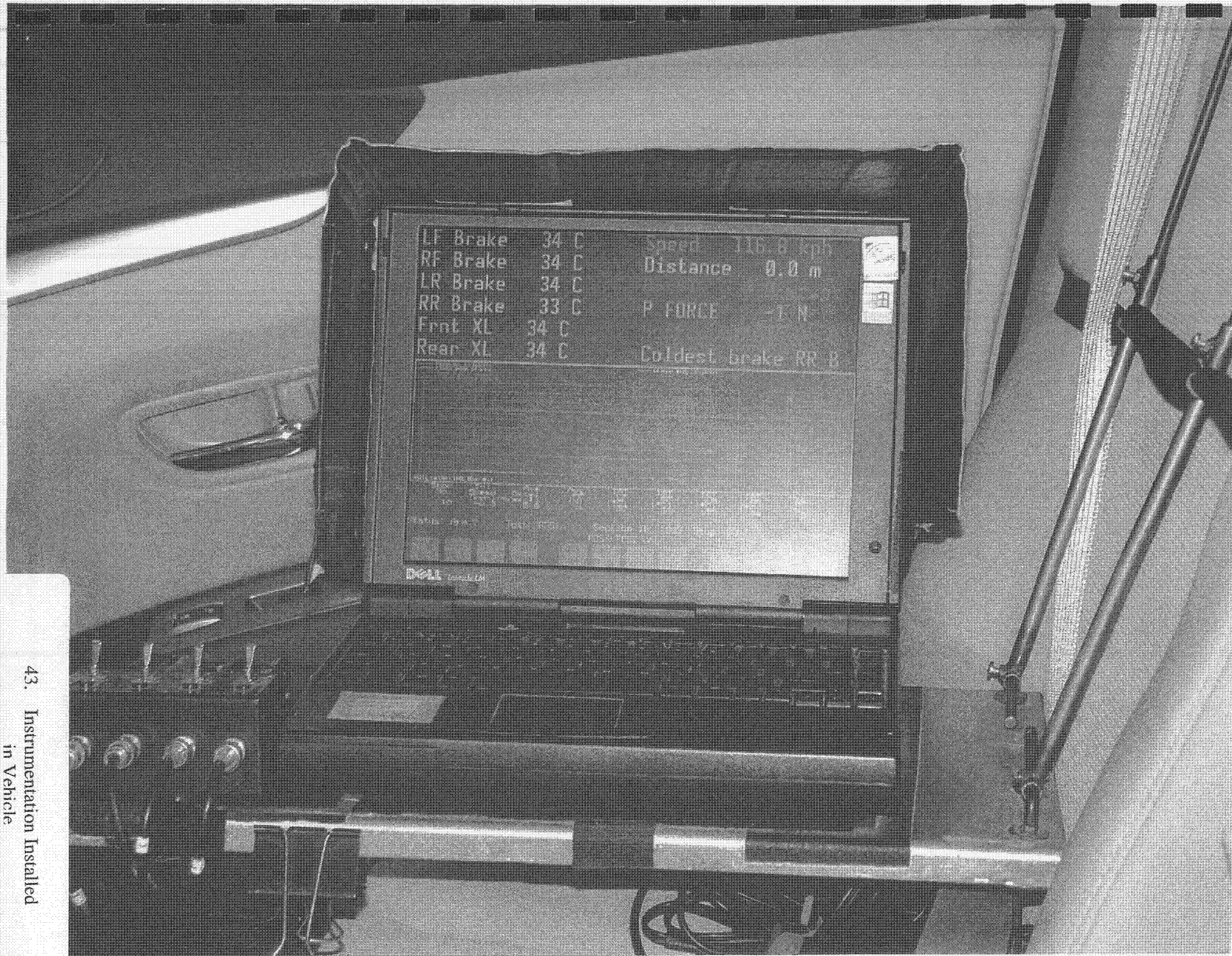
RIGHT
REAR



41. Instrumentation Installed
in Vehicle



42. Instrumentation Installed
in Vehicle



43. Instrumentation Installed
in Vehicle



44. Instrumentation Installed
in Vehicle



45. Instrumentation Installed
in Vehicle

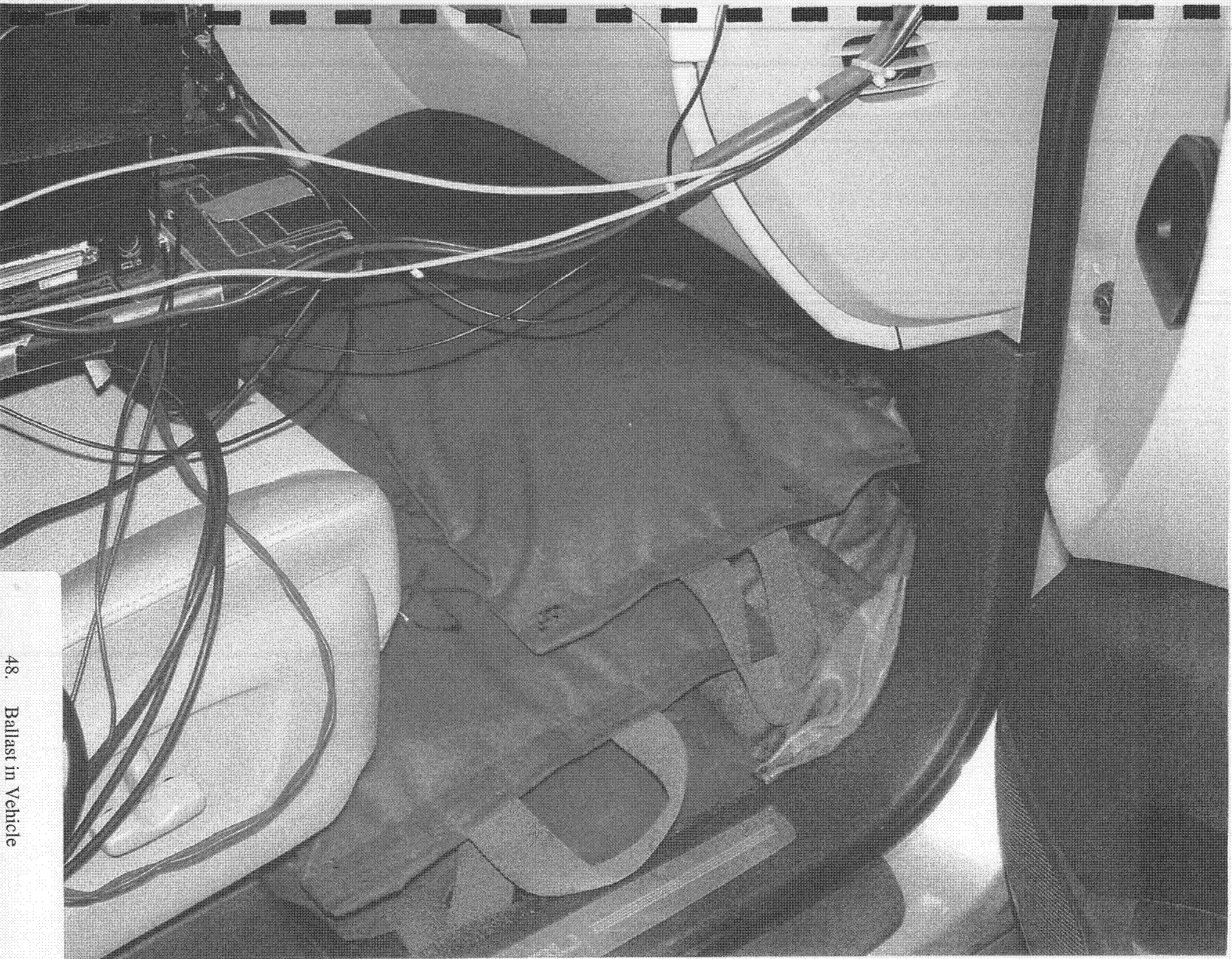


A black and white photograph showing the rear of a silver 2006 Subaru Tribeca. The car is parked on a concrete surface in front of a dark, textured wall. A white identification tag is hanging from the rear window. The car's rear features include the Subaru emblem, taillights, and a license plate area with the word 'TRIBECA' on the right. A white rectangular tag with black text is positioned in front of the car's rear bumper.

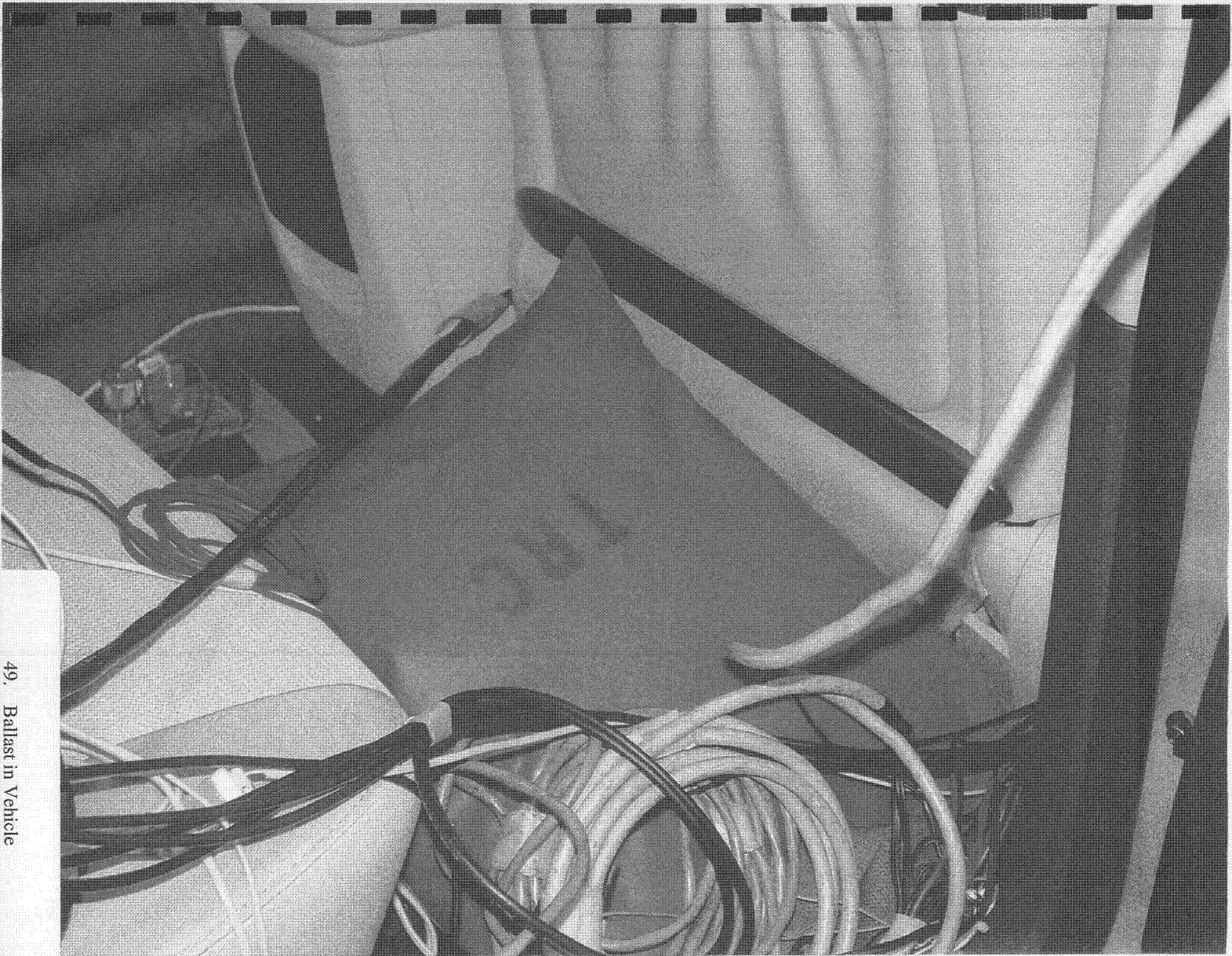
2006
SUBARU B9
TRIBECA
5DR. MPV
NHTSA NO.
C65500
JULY 2006



47. Ballast in Vehicle



48. Ballast in Vehicle



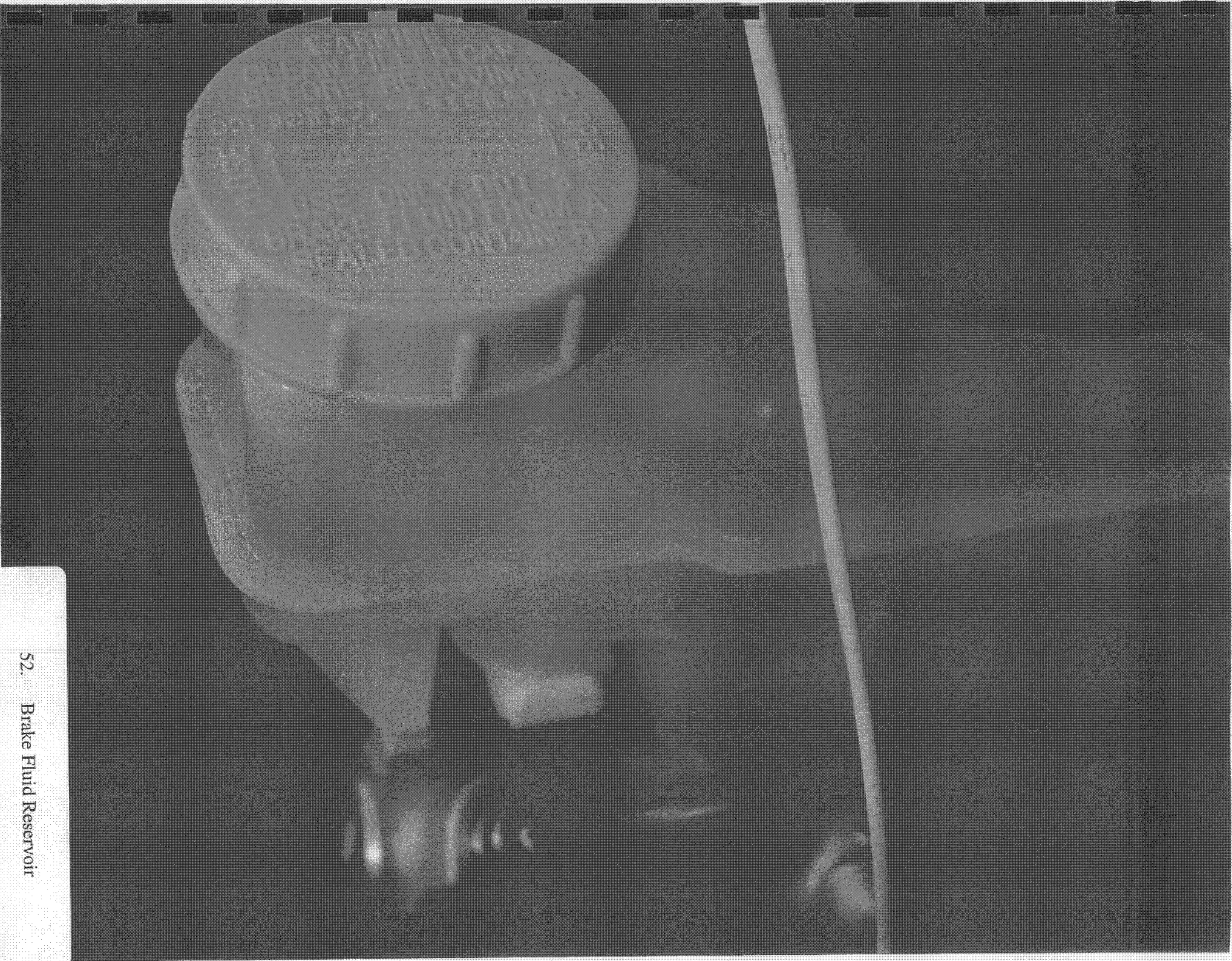
49. Ballast in Vehicle



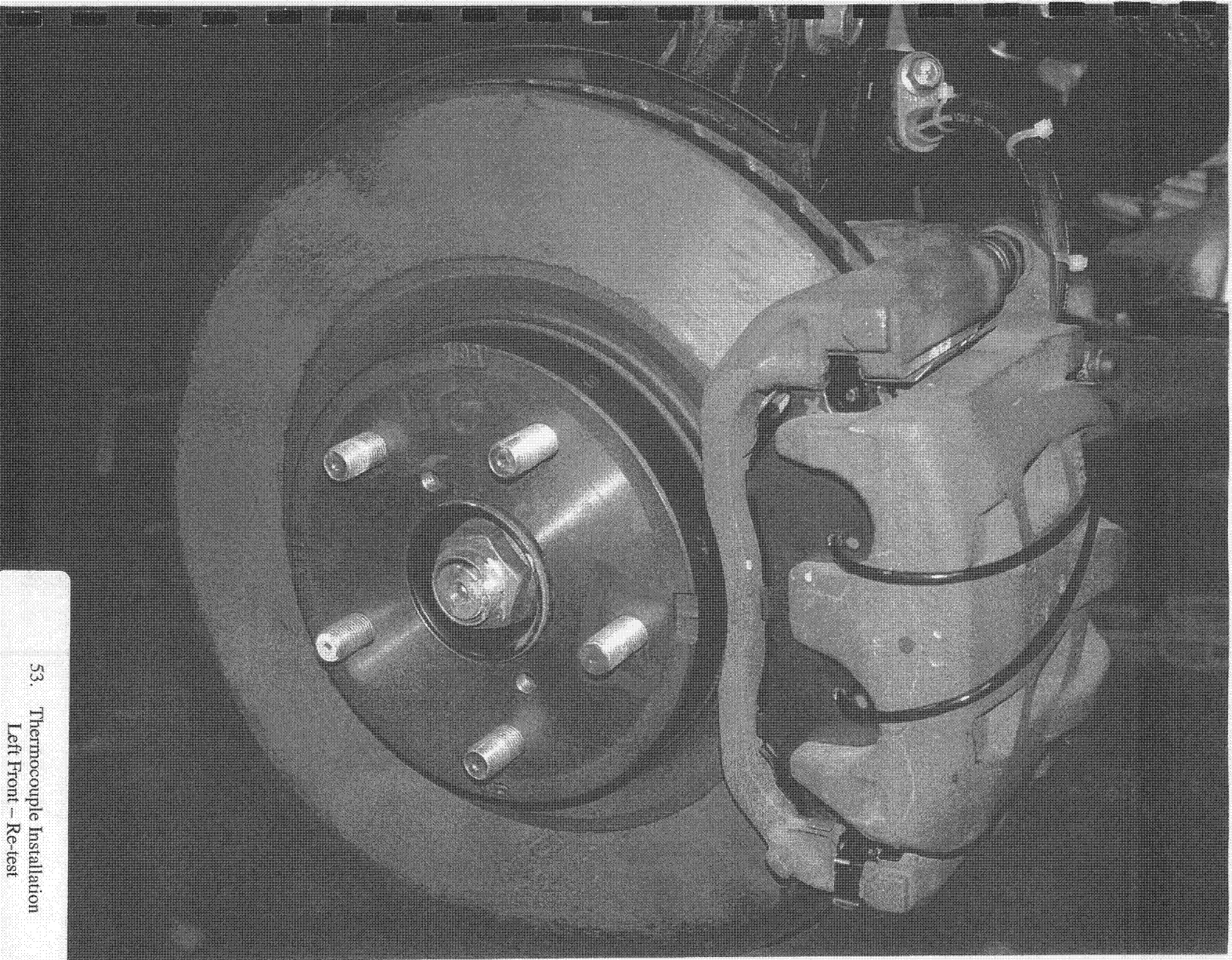
50. Ballast in Vehicle

BRAKE

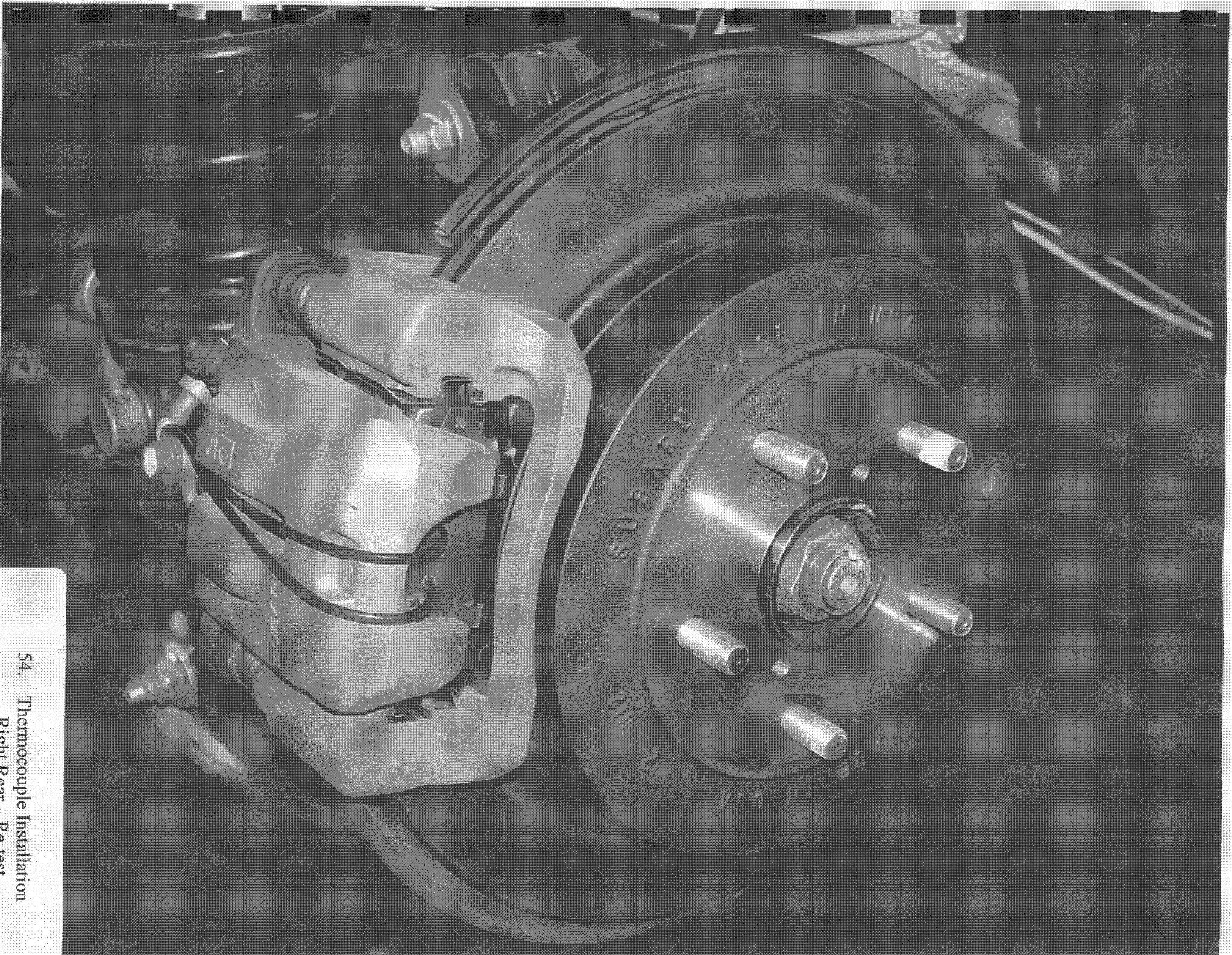
ABS



52. Brake Fluid Reservoir



53. Thermocouple Installation
Left Front - Re-test



54. Thermocouple Installation
Right Rear - Re-test

7.0 INSTRUMENT CALIBRATION (12 MONTH MAXIMUM INTERVAL)

VEHICLE: 2006 Subaru B9 Tribeca ; NHTSA NO.: C65500; DATE: 07/10/06

INSTRUMENT	SERIAL NUMBER	CALIBRATION DATE	NEXT CALIBRATION
Data Acquisition System - Link DAS 2082	975016	04/26/06	10/26/08
Computer – Toshiba Satellite/Link Engrg.	TRC-43207	Not Applicable	Not Applicable
Software - Link Engrg. Rev Data	TRC Propr.	NA	NA
LF Torque Wheel	Not Utilized		
RF Torque Wheel	Not Utilized		
LR Torque Wheel	Not Utilized		
RR Torque Wheel	Not Utilized		
Stopwatch – Fisher Scientific	SW ST03	08/17/05	08/17/06
Tire Pressure Gauge – Dill	AG-034	04/12/06	07/12/06
Voltage Multimeter – Dana 4300	M-108639	02/13/06	02/13/07
Pedal Force Transducer – GSE	LC-4351-300	Each Test	Each Test
Asst. Pipe-Handle Steel Weights - Ohaus	LB-0001	09/13/05	03/14/07
Park Brake Force Transducer – Interface	41721	Each Test	Each Test
LF Hydraulic Pressure Transducer	Not Utilized		
RF Hydraulic Pressure Transducer	Not Utilized		
LR Hydraulic Pressure Transducer	Not Utilized		
RR Hydraulic Pressure Transducer	Not Utilized		
Accelerometer - Setra (+ or – 15 g) 141A	A-167627	Each Test	Each Test
Fifth Wheel – ADAT DSR-06 Radar	140.0082	Each Test	Each Test
Wind Velocity/Direct. – Davis Model 6410	051025N02	06/29/06	06/29/07
Ambient Temp. Gage–Davis Mod. 6150C	050826N08	06/29/06	06/29/07
LF Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RF Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
LR Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
RR Brake Thermocouple - Temprel/Link	T52-0B-24K	Ea. Test w/Link	Ea. Test w/Link
Lock-up Detection System	TRC Propr.	Each Test	Each Test
Vehicle Weight – Toledo/Mettler Scales JAGXTREME 3000000, (Bldg. 70)	SN 5225831-5JC	04/15/06	07/15/06

QUALITY ASSURANCE

DAILY CALIBRATIONS (1 of 3)

Vehicle: 2006 Subaru B9 Tribeca

NHTSA No.: C65500

Deceleration Calibration Data for Unit 6351

Desired full scale value is: 9.81 m/s/s

Allowed deviation is: + or - 0.15 m/s/s

Accelerometer Level to zero, then tilt to full scale

"Date"	"Time"	Zero	Cal
"stp"	"stp"	"Decel"	"Decel"
7/13/2006	10:41:52	9.79	-0.01
7/14/2006	8:27:53	9.90	0.01
7/17/2006	7:55:07	9.89	0.08
7/17/2006	16:09:55	9.82	-0.01
7/18/2006	8:26:56	9.76	0.09
7/18/2006	16:04:25	9.80	0.00
7/19/2006	10:01:54	9.81	-0.02
7/19/2006	12:03:23	9.81	-0.02

PRE-TEST CAL.

POST-TEST CAL

Pre-Test Linearity Check 07/13/2006

Actual (m/s/s)	Rec. (m/s/s)
0.0	0.0
3.0	3.0
6.1	6.1
9.8	9.8

Post-Test Linearity Check 07/19/06

Actual (m/s/s)	Rec. (m/s/s)
0.0	0.0
3.0	3.0
6.1	6.1
9.8	9.8

Distance Calibration Data for Unit 6351

Desired full scale value is: 1000 m

Allowed deviation is: 3 m

Light beam Drive from 0 to 100 to 0 km/h
distance sensor on a measured kilometer

"Date"	"Time"	Distance for
"stp"	"stp"	1000 meters
7/13/2006	11:47:33	1000.9
7/14/2006	8:35:12	998.3
7/17/2006	8:05:49	997.4
7/17/2006	16:16:18	997.2
7/18/2006	8:48:17	997.7
7/18/2006	16:10:35	997.6
7/19/2006	10:09:34	999.0
7/19/2006	12:09:19	998.2

PRE-TEST CAL.

POST-TEST CAL.

DAILY CALIBRATIONS CONTINUED (2 of 3)

Vehicle: 2006 Subaru B9 Tribeca

NHTSA No.: C65500

Wheel Tachometer Calibrations for Unit 6351

Wheel tachometer calibrations: all wheel speeds should be 15 km/h

Wheel lock While at a
detector standstill,
check zeros
Drive vehicle
at approx.
15 km/h and
engage zero
speed switch
for each
wheel

"Date"	"Time"	Zero	@15km/h	Zero	@15km/h	Zero	@15km/h	Zero	@15km/h
stp	stp	LF	LF	RF	RF	LR	LR	RR	RR
7/13/2006	11:50:47	0.0	16.8	-0.1	15.9	0.0	20.2	0.0	21.8
7/14/2006	8:31:06	0.0	15.6	0.0	16.0	-0.1	18.5	-0.1	17.1
7/17/2006	8:02:33	0.0	16.6	0.0	16.2	-0.1	19.7	0.0	19.0
7/17/2006	16:11:35	-1.9	-0.8	0.0	15.7	-0.1	18.7	0.0	19.6
7/18/2006	8:50:22	-3.4	-2.9	0.0	15.7	-0.1	21.4	0.0	26.4
7/18/2006	16:09:32	-1.4	13.6	-0.1	18.3	0.0	20.0	-0.1	24.7
7/19/2006	10:05:27	-1.2	14.5	0.0	19.0	-6.1	54.1	0.0	25.1
7/19/2006	12:11:25	-2.0	12.6	0.0	18.5	-0.1	17.3	-0.1	22.4

PRE-TEST CAL.

POST-TEST CAL.

When driven over 15 km/hr and the wheel tack generators are shunted to zero volts, does the graphical screen indicate wheel lock at position?: X Yes, No.

Note: The wheel tach calibrations did not occur until after the Burnish was complete.

Pedal Force Meter Calibration for Unit 6351

Target shunt calibration is 792 N

Desired recorded value is: 792 N

Desired recorded actual force calibration check value is: Not Appl.

Allowed deviation is: 6.5 N

Service brk Driver
pedal effort engages a
fixed shunt
cal switch.

"Date"	"Time"	Zero	Cal Val
stp	stp	Force	Force lb
7/13/2006	10:38:27	-0.9	792.9
7/14/2006	8:27:01	-0.8	793.5
7/17/2006	7:56:41	-0.4	792.8
7/17/2006	16:08:58	-1.7	793.1
7/18/2006	8:25:53	-0.7	793.0
7/18/2006	16:06:49	-0.7	793.1
7/19/2006	10:03:22	-0.4	793.5
7/19/2006	12:04:01	-0.5	792.8
7/19/2006	13:47:57	-0.2	792.9

PRE-TEST CAL.

POST-TEST CAL.

Pre-Test Linearity Check - 07/13/06

Actual	Recorded
Force (N)	Force (N)
0	0
222	223
445	445
498	498

Post-Test Linearity Check - 07/19/06

Actual	Recrdd
Force (N)	Frc(N)
0	0
222	222
445	443
498	495

DAILY CALIBRATIONS CONTINUED (3 of 3)

Vehicle: 2006 Subaru B9 Tribeca

NHTSA No.: C65500

Dynamic Speed Calibration for Unit 6351

Desired speed value is: 100 km/h

Allowed deviation is: 1.6 km/h

Desired time value is: 36 seconds

Allowed deviation is: + or - 0.6 seconds

Light beam speed sensor Drive vehicle at a steady 100 km/h through a kilometer.

"Date"	"Time"	"Speed"	Time"
stp	stp	km/h	sec
7/13/2006	11:52:37	100.1	36.06
7/14/2006	8:33:22	99.7	36.21
7/17/2006	8:04:07	101.0	35.87
7/17/2006	16:14:16	100.4	36.21
7/18/2006	8:46:27	100.3	36.06
7/18/2006	16:08:06	100.6	36.15
7/19/2006	10:07:29	100.2	36.18
7/19/2006	12:07:17	100.4	35.81

APPENDIX A

Copy of Manufacturer's Sticker



SUBARU
SAFETY

Symmetrical All-Wheel Drive (AWD)
Anti-Lock Brakes: 4-Wheel Vented Disc
Electronic Brake-Force Distribution
Air Bags: Dual Front & Side Curtain (SRS)
Air Bags: Front Seat Side-Impact (SRS)
Active Front Seat Head Restraints
Child Anchorage LATCH System
Daytime Running Lights
Ring-Shape Reinforcement Frame
Tire Pressure Monitoring System (TPMS)
Vehicle Dynamics Control (VDC)
3-Point Seatbelts, All Seating Positions
***** PERFORMANCE AND EXTERIOR *****
3.0L Horizontally-Opposed DOHC Engine
5-Speed Auto Transmission w/ SPORTSHIFT
18-Inch Aluminum-Alloy Wheels
Multi-Reflector Halogen Fog Lights
Power Moonroof: Tilt-Up/Retract Features
P255/55 R18 M+S Radial Tires

Air Filtration System
AM/FM Stereo w/ Single Disc CD Player
with 6 Speakers & MP3 Capability
Cruise Control & Tilt Steering Column
Dual-Zone Automatic Climate Control
Heated Mirrors, Windshield Wiper De-Icer
Homelink System
Leather-Wrapped Steering Wheel/Shift Knob
Multi-Function Trip Computer
Power Door Locks & Dual Power Mirrors
Power Windows With Driver's Auto Down
Power Driver & Passenger Seats
Remote Keyless Entry System
Rear Seatback 40/20/40 Split Fold-Down
***** LIMITED WARRANTIES *****
3 Year / 36,000 Mile Basic
5 Year / 60,000 Mile Powertrain
5 Yr/Unlimited Mileage Rust Perforation
See Owner's Manual For Details

B9 TRIBECA

Standard Vehicle Price

Manufacturer's Suggested Retail Price

\$30,695.00

OPTIONAL EQUIPMENT AND OTHER ITEMS

****SUBARU ALL-WHEEL DRIVING SYSTEM ****

To achieve maximum Traction and Performance, every Subaru integrates a unique system combining All-Wheel Drive with a symmetrically balanced horizontally opposed engine and an optimally tuned independent suspension. The result is exceptional Handling and Control in all driving conditions.
STANDARD ON ALL SUBARU VEHICLES

3yr/36k Subaru Roadside Assistance
24hrs/7days - See Owner Info Kit And
Warranty For Details

INCLD
INCLD
INCLD

Bumper Cover
WHEEL LOCKS
Cargo Tray - Beige
Cargo Net, Rear
Auto-Dimming Mirror/Compass

\$ 61.00
\$ 42.00
\$ 75.00
\$ 47.00
\$ 183.00

Compare this vehicle to others in the **FREE GAS MILEAGE GUIDE** available at the dealer.

City MPG

18



Highway MPG

23

Actual Mileage will vary with options, driving conditions, driving habits and vehicle's condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between

14 and 22

mpg in the city, and between

19 and 27

mpg on the highway.

2006 Subaru B9 Tribeca AWD
3.0 LITER ENGINE, 6 CYLINDERS
5Spd Sprt Shift Auto Trans

For Comparison Shopping,
all vehicles
Spec'L Purp AWD

Multi-Point Fuel Injection

have been issued mileage ratings

0 to 0 mpg city

0 to 0 mpg highway

(Feedback Fuel System)

CALIF. EMISSION CONTROL SYST and

ESTIMATED ANNUAL FUEL COST: NOT AVAILABLE

\$1462.00



**Ask about
Added Security**

The only extended service contract backed by Subaru.

24 Hour Subaru Roadside Assistance



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Subaru of America, Inc. 1000 West Main Street, Portland, ME 04108

APPENDIX B

Discussion on Data

DISCUSSION ON DATA

Symbols for Brake Components

4	-	4 Wheel	G	-	Groan	DL	-	Deceleration (State FPSPS)
X	-	Skid	SQ	-	Squeal	PF	-	Pedal on Floor
L	-	Left	SQK	-	Squeak	SCP	-	Shoe Scrape
R	-	Right	PO	-	Pinchout	RB	-	Rubber Banding
R	-	Rear	P	-	Pull	O	-	Odor
F	-	Front	R	-	Shudder	NOX	-	No Skid
B	-	Both	M	-	Momentary			

INT or INIT	-	Initial Part of Stop
MID	-	Middle of Stop
END	-	End of Stop

All stops were made manually.

APPENDIX C

Contractor's Comments Procedure Modifications and Test Facility

Comments for vehicle C65500.

For all recorded decelerations:

The recorded *average* deceleration values for the tests are slightly lower than that which is required or targeted for certain test sections. However, in all cases and in reality, the driver maintained the correct required/target deceleration values for the majority of time for each of those stops. The recorded deceleration is acquired from the moment the service brake pedal is moved until the vehicle reaches zero speed. Therefore, the time needed to achieve the target deceleration (rise time) and the time the vehicle goes from the target deceleration to zero (fall time) is included in the average deceleration calculation. The rise and fall times were added to the entire length of the stops. Hence the recorded average deceleration values were generally and slightly less than the required/target deceleration values.

For Data Sheets 16 & 22 – Antilock Functional Failure at LLVW and GVWR, respectively, the ABS and the Electrical Variable Proportioning (Electronic Brake-Force Distribution) are integral. Failing the ABS also fails the Electrical Variable Proportioning. The Electrical Variable Proportioning cannot be failed separately. Therefore, Data Sheets 17 and 23 are not included.

For Data Sheets 18 through 21, the Hydraulic Circuit Failures, the tests were performed in the following order: Data Sheet 18, 19, 21 and 20. This was due to the difficult accessibility of accessing the master cylinder output ports.

Due to the long time interval between the test vehicle's acquisition and subsequent testing and, therefore, possible corrosion, NHTSA/OVSC's Technical Representative requested that TRC Inc. acquire new, identical front and rear linings and rotors, and install them on the test vehicle prior to testing. This was done. New component and the photographs are labeled "Re-test" in Section G.

For the Parking Brake at GVWR test, Data Sheet 25, the vehicle did not hold/comply. The driver felt that the parking brake foot control had "bottomed" on the floor/firewall before reaching the 500 N force. The OVSC FMVSS 135 Standard's Technical Engineer was contacted and, subsequently, requested the manufacturer facsimile parking brake adjustment procedures to TRC Inc. TRC Inc. received the procedures, adjusted the parking brake system accordingly and tested again on the 20% slope. This time the vehicle complied with the Standard. Prior to adjustment, six "clicks" were achieved at 143 N. After adjustment, six clicks were achieved at 300 N, per the manufacturer's instructions.

7.5-MILE TEST TRACK

The 7.5-mile test track encloses a 1,600-acre area, one mile wide and 3.5 miles long.

The track has a downward grade, north to south, of 0.228 percent and a cross slope in the straightaways of 3/16 inch per foot. The 1.88 mile long straightaways flow into transition areas 2,300 feet in length and then into 5,275-foot long curves with a constant radius of 2,400 feet. The 36-foot wide straightaways and the 42-foot wide curves provide three test lanes. Paved berms, 12 feet in width, border the straightaways and the inside of the curves.

As a vehicle moves toward the outside of the track in the curves, it encounters a progressively steeper bank. The inside lane (or "slow" lane) has a bank of 10 degrees allowing a neutral speed of 80 mph with no side forces. In the center lane, the slope increases to 19 degrees resulting in a neutral speed of 110 mph. The outside lane's 28-degree bank allows a 140 mph neutral speed. Rimming the outer lane is a seven-foot safety lane culminating in a 36-degree slope at the guardrail.

The facility is paved with Portland cement concrete. It carries a maximum single axle load of 36,000 pounds and a maximum tandem axle load weight of 48,000 pounds. Special provisions can be made for heavier weight loads.

With 22.5 lane miles, our track will accommodate many vehicles simultaneously. Research which utilizes the track includes component performance and durability studies, brake tests, aerodynamic studies, fuel economy studies, drive line efficiency tests, and the determination of vehicular acceleration and cruise characteristics. In addition, it supports maximum speed determination, road load power, noise and emission measurements and tire durability test programs.

The 7.5-mile test track can be used in conjunction with other facilities at TRC. It provides an excellent area for pre-test conditioning of equipment such as brake burnishing, tire break-in, and vehicle warm-up.

TRC SKID PAD

The Skid Pad is a test facility which is utilized primarily for the evaluation of tire and brake systems.

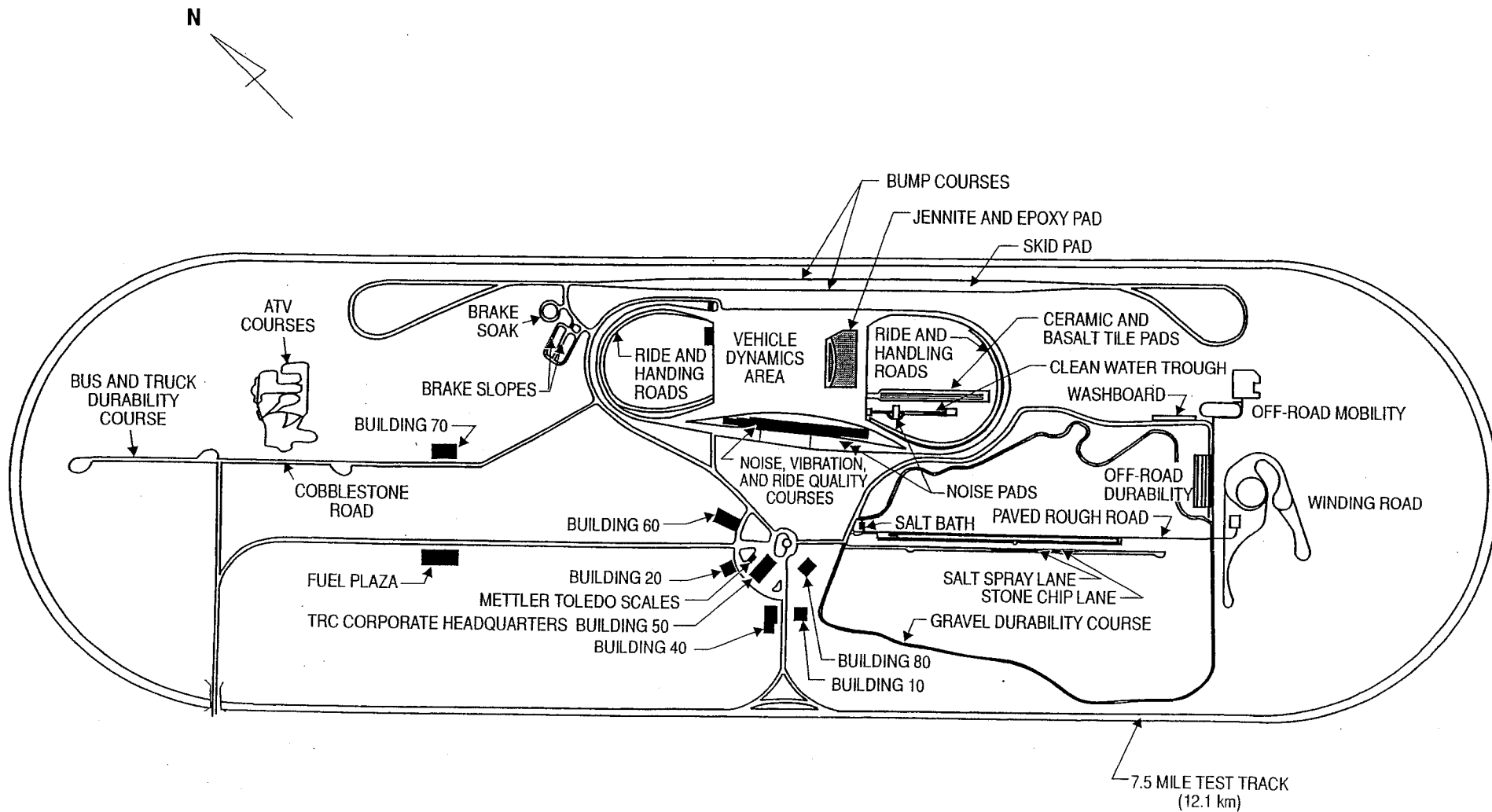
The overall dimensions of the pad are 9,000 feet by 84 feet with loops on the north and south ends. Both turnaround loops have a 309-foot radius and are 16 feet wide with a 25 percent super elevation. They will accommodate speeds of 45 mph with zero side force and 60 mph with .5 g's lateral acceleration. The acceleration/deceleration lanes at each end are 3,280 feet in length.

A test area of 210,000 square feet is situated in the center of the skid pad containing several test pads with varying surface textures. Skid numbers in this area range from 30 (wet) to 80 (dry).

The skid pad is paved with Portland cement. The load capacity of the skid pad is 36,000 pounds maximum single axle weight and 48,000 pounds maximum tandem axle weight.

Varying surface textures in the main test area are ideal for testing tire and/or brake system performance on different surfaces as characterized by "skid numbers." The skid pad is also used for acceleration studies, aerodynamics, rolling resistance, noise testing, and vehicle top speed determination.

The subject test vehicle was rear wheel anti lock equipped. Rather than rapidly and fully applying the service brake control, the driver modulated the service brake control as necessary to control/prevent front wheel lock.



NOT TO SCALE

TEST FACILITY DETAIL

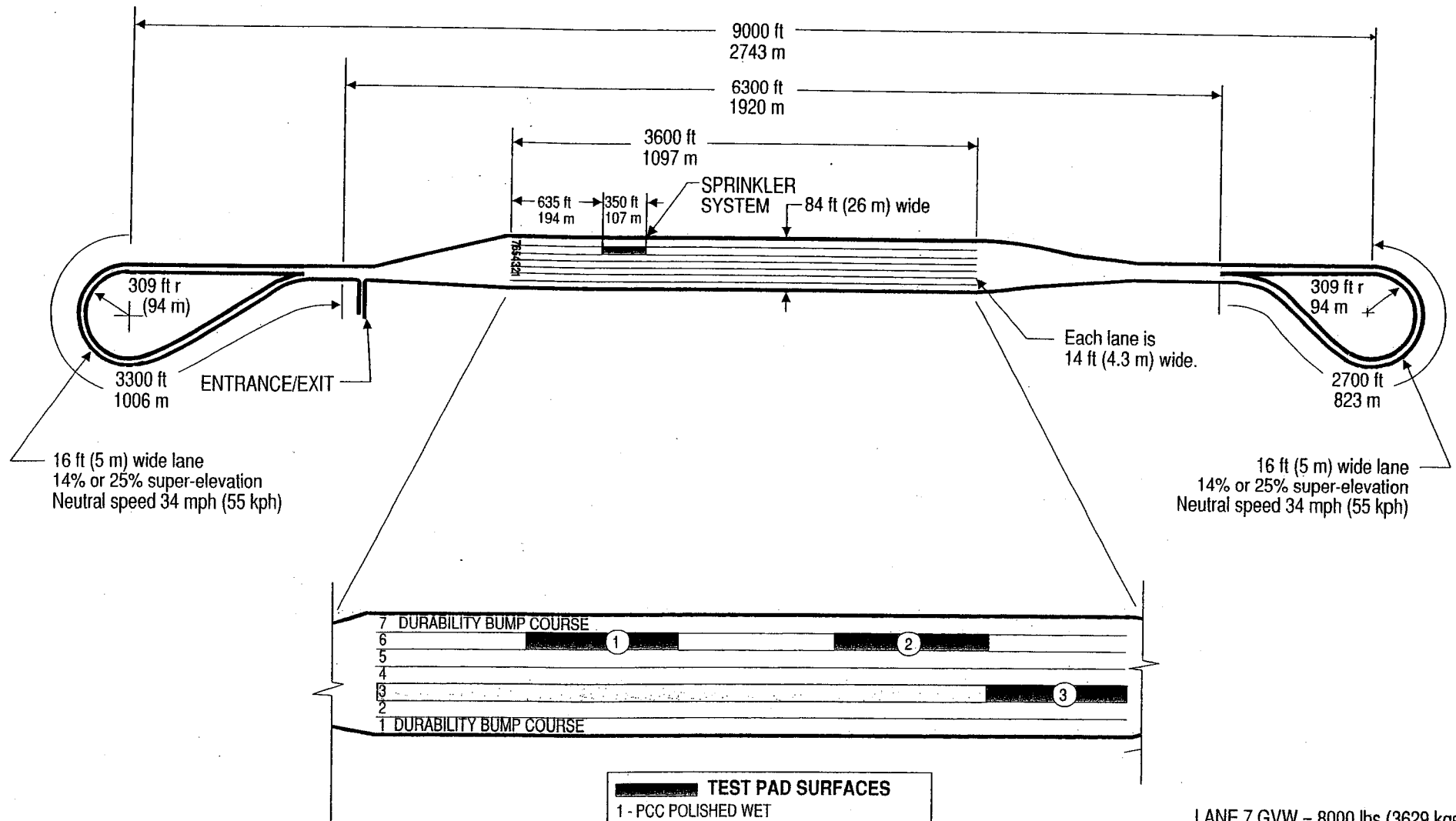


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ALL CONCRETE BROOMED SURFACE
1 LAP = APPROXIMATELY 4 MILES (6.4 KILOMETERS)



TEST PAD SURFACES

- 1 - PCC POLISHED WET
- 2 - PCC SMOOTH TROWELLED WET
- 3 - PCC PCC COURSE BROOMED DRY

LANE 7 GVW = 8000 lbs (3629 kgs)
GVW = 80,000 LBS (36,298 kgs)

NOTE: BUMP COURSES PARALLEL THE PERIMETERS OF LANES 1 AND 7.

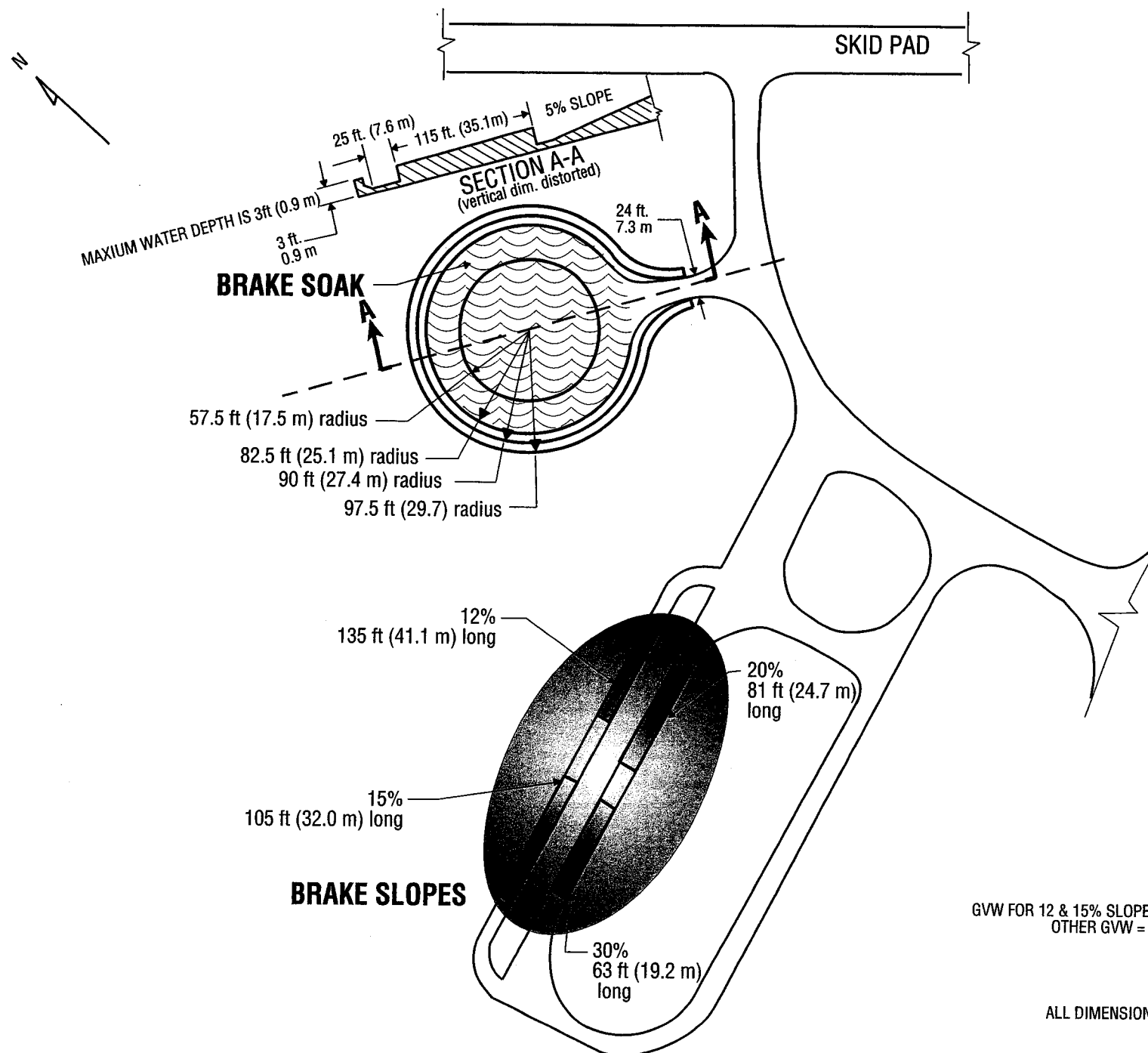
Not to scale
All dimensions are approximate

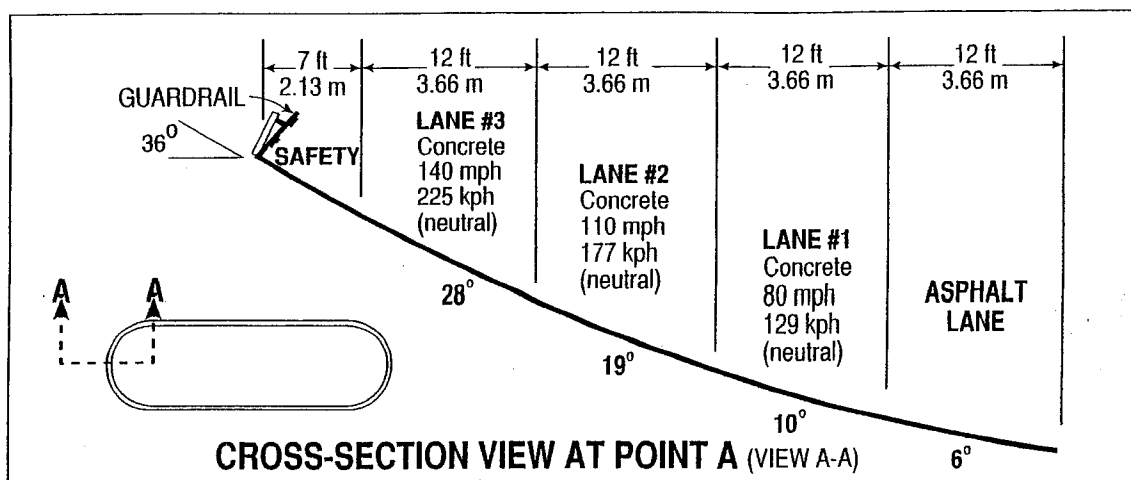
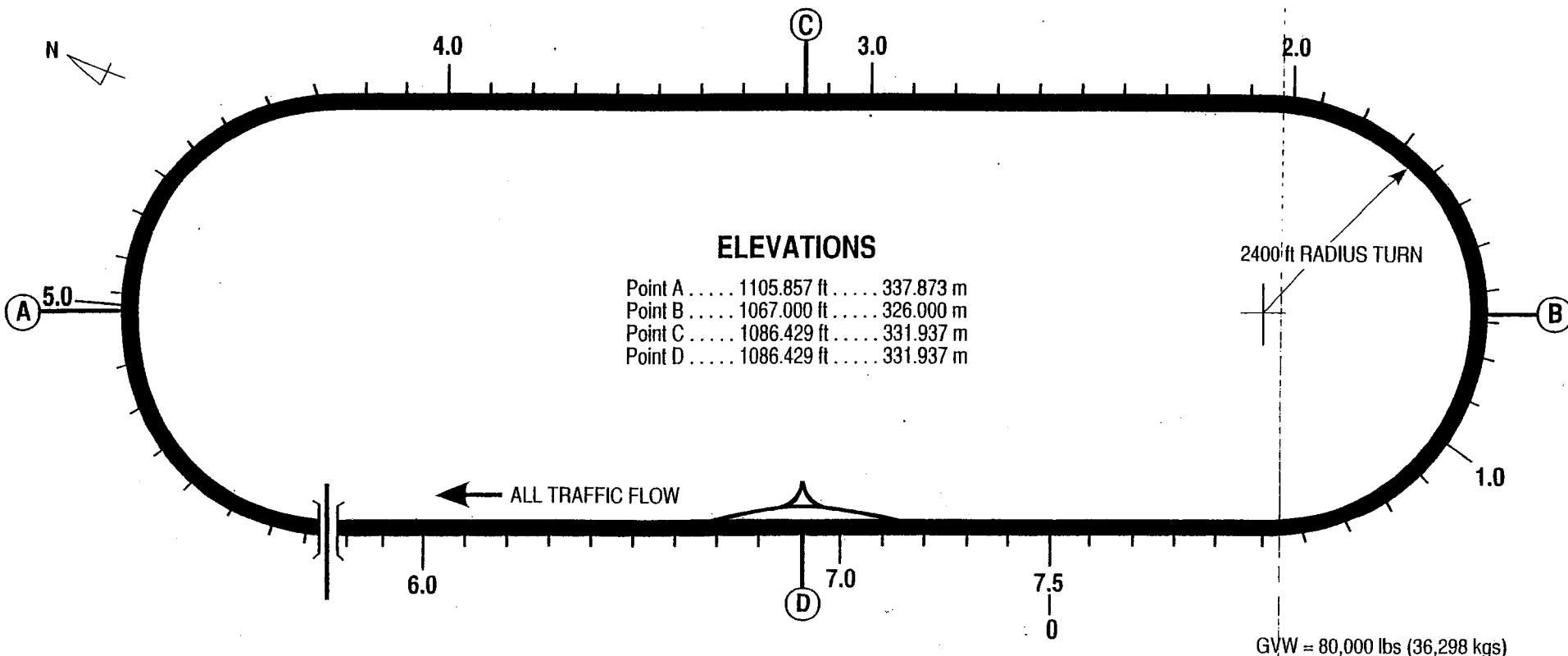
SKID PAD

TRE®

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DISTANCES	
Lane 3	7.539 mi 12.133 km
Lane 2	7.521 mi 12.104 km
Lane 1	7.507 mi 12.081 km
Point A to Point B	3.333 mi 5.364 km
Point C to Point D	.947 mi 1.524 km

NOT TO SCALE

7.5-MILE TEST TRACK



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APPENDIX D
Notice of Possible Non-Compliance

This vehicle (C65500) met the requirements of the FMVSS 135 standard.